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May 29, 2003

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APPLICATION NUMBER: *60/380,095*
FILING DATE: *May 03, 2002*
RELATED PCT APPLICATION NUMBER: *PCT/US03/13371*

By Authority of the
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PTO/SB/16 (10-01)
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. EU140615549US

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
CHI-PING	TSENG	WILMINGTON, DE

☐ *Additional inventors are being named on the ____ separately numbered sheets attached hereto*

TITLE OF THE INVENTION (500 characters max)

AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

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ENCLOSED APPLICATION PARTS *(check all that apply)*

☒ Specification *Number of Pages* 65 ☐ CD(s), Number
☐ Drawing(s) *Number of Sheets* ☐ Other (specify)
☐ Application Data Sheet. See 37 CFR 1.76

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

☐ Applicant claims small entity status. See 37 CFR 1.27.
☐ A check or money order is enclosed to cover the filing fees

FILING FEE AMOUNT ($)

☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 04-1928 — 160.
☐ Payment by credit card. Form PTO-2038 is attached.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.
☐ Yes, the name of the U.S. Government agency and the Government contract number are: ____.

Respectfully submitted, Date 05/03/02

SIGNATURE

TYPED or PRINTED NAME DAVID E. HEISER

REGISTRATION NO. (if appropriate) 31,366

TELEPHONE 302 892 1926

Docket Number BA9302 US PRV

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

PTO/SB/17 (11-01)
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FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 160

Complete if Known	
Application Number	UNKNOWN
Filing Date	HEREWITH
First Named Inventor	CHI-PING TSENG
Examiner Name	UNKNOWN
Group / Art Unit	UNKNOWN
Attorney Docket No.	BA9302 US PRV

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 04-1928

Deposit Account Name: E. I. du Pont de Nemours and Company

The Commissioner is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments
☒ Charge any additional fee(s) during the pendency of this application
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	160

SUBTOTAL (1) ($) 160

2. EXTRA CLAIM FEES

			Extra Claims		Fee from below	=	Fee Paid
Total Claims		-20	0	X	18	=	0
Independent Claims		-3	0	X	84	=	0
Multiple Dependent	☐			X	280	=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive – unavoidable	
141	1,280	241	640	Petition to revive – unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($) 0

SUBMITTED BY				Complete *(if applicable)*	
Name (Print/Type)	DAVID E. HEISER	*Registration No. Attorney/Agent)*	31,368	*Telephone*	302 892 1926
Signature				Date	MAY 3, 2002

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TITLE

AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES

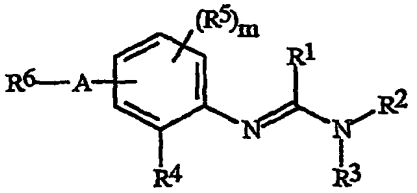
FIELD OF THE INVENTION

This invention relates to certain amidines, their agriculturally suitable salts and compositions, and methods of their use as fungicides.

BACKGROUND OF THE INVENTION

The control of plant diseases caused by fungal plant pathogens is extremely important in achieving high crop efficiency. Plant disease damage to ornamental, vegetable, field, cereal, and fruit crops can cause significant reduction in productivity and thereby result in increased costs to the consumer. Many products are commercially available for these purposes. The need continues for new compounds which are more effective, less costly, less toxic, environmentally safer and/or have different modes of action.

WO 00/46184 discloses certain phenylamidines of formula i as fungicides



i

wherein,

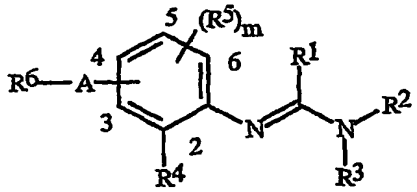
A and R^1 through R^5 are as defined therein; and

R^6 is optionally substituted carbocyclyl or heterocyclyl.

Various amidinylphenyl compounds are also disclosed in U.S. Patent No. 3,284,289, U.S. Patent No. 3,993,469, U.S. Patent No. 4,018,814, U.S. Patent No. 4,154,755, U.S. Patent No. 4,208,411, U.S. Patent No. 4,209,319 and U.S. Patent No. 5,219,868.

SUMMARY OF THE INVENTION

This invention is directed to compounds of Formula I (including all geometric and stereoisomers) and agriculturally suitable salts thereof, agricultural compositions containing them and their use as fungicides:



I

wherein

R^1 is H, OH, SH, SO_3H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R^1 is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;

R^2 is H, CN, $-OR^7$, or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_6 carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C_2-C_{10} alkylcarbonyl, each optionally substituted;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C_2-C_{10} alkylcarbonyl, each optionally substituted; or

R^2 and R^3 can be taken together with their interconnecting nitrogen to form a heterocyclic ring containing 3 to 7 atoms, said ring consisting of said interconnecting nitrogen atom, carbon and optionally one or two additional atoms selected from the group consisting of nitrogen, sulfur and oxygen, and said ring being optionally substituted with one or more R^9;

R^4 and each R^5 are each independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, C_1-C_6 haloalkyl, C_2-C_6 haloalkenyl, C_2-C_6 haloalkynyl, C_3-C_6 halocycloalkyl, halogen, CO_2H, $CONH_2$, SF_5, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino, C_3-C_6 cycloalkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl or C_3-C_6 trialkylsilyl;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxycarbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted; or R^6 is C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12};

A is a direct bond, O, $S(O)_n$ or NR^{10};

each R^7 is independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted;

each R^9 is independently halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkyl, C_1-C_4 haloalkoxy or C_1-C_4 alkylthio;

R^{10} is H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylsulfonyl, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl or C_3-C_6 trialkylsilyl;

each R^{12} is independently CO_2H, $CONH_2$, NO_2, C_1-C_6 haloalkoxy, C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_1-C_6 alkylsulfonyl, C_1-C_6 haloalkylthio, C_1-C_6

haloalkylsulfinyl, C_1-C_6 haloalkylsulfonyl, C_1-C_6 alkylamino, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_4-C_{10} alkylaminoalkylcarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_8 dialkylaminoalkylcarbonyl, C_3-C_9 alkylthioalkylcarbonyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy;

n is 0, 1 or 2; and

m is 0, 1,2 or 3.

DETAILS OF THE INVENTION

The compounds of Formula I as illustrated above can also be described as compounds of the formula $(R^5)_m$-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]benzene, wherein R^1, R^2, R^3, R^4, R^5, R^6, A, m are as defined above.

In the above recitations, the term "alkyl", used either alone or in compound words such as "alkylthio" or "haloalkyl" includes straight-chain or branched alkyl, such as, methyl, ethyl, *n*-propyl, *i*-propyl, or the different butyl, pentyl or hexyl isomers. "Alkenyl" includes straight-chain or branched alkenes such as ethenyl, 1-propenyl, 2-propenyl, and the different butenyl, pentenyl and hexenyl isomers. "Alkenyl" also includes polyenes such as 1,2-propadienyl and 2,4-hexadienyl. "Alkynyl" includes straight-chain or branched alkynes such as ethynyl, 1-propynyl, 2-propynyl and the different butynyl, pentynyl and hexynyl isomers. "Alkynyl" can also include moieties comprised of multiple triple bonds such as 2,5-hexadiynyl. "Alkoxy" includes, for example, methoxy, ethoxy, *n*-propyloxy, isopropyloxy and the different butoxy, pentoxy and hexyloxy isomers. "Alkoxyalkyl" denotes alkoxy substitution on alkyl. Examples of "alkoxyalkyl" include CH_3OCH_2, $CH_3OCH_2CH_2$, $CH_3CH_2OCH_2$, $CH_3CH_2CH_2CH_2OCH_2$ and $CH_3CH_2OCH_2CH_2$. "Alkoxyalkoxy" denotes alkoxy substitution on alkoxy. "Alkylthio" includes branched or straight-chain alkylthio moieties such as methylthio, ethylthio, and the different propylthio, butylthio, pentylthio and hexylthio isomers. "Alkylthioalkyl" denotes alkylthio substitution on alkyl. Examples of "alkylthioalkyl" include CH_3SCH_2, $CH_3SCH_2CH_2$, $CH_3CH_2SCH_2$, $CH_3CH_2CH_2CH_2SCH_2$ and $CH_3CH_2SCH_2CH_2$. "Alkylthioalkoxy" denotes alkylthio substitution on alkoxy. "Alkylsulfinyl" includes both enantiomers of an alkylsulfinyl group. Examples of "alkylsulfinyl" include $CH_3S(O)$, $CH_3CH_2S(O)$, $CH_3CH_2CH_2S(O)$, $(CH_3)_2CHS(O)$ and the different butylsulfinyl, pentylsulfinyl and hexylsulfinyl isomers. Examples of "alkylsulfonyl" include $CH_3S(O)_2$, $CH_3CH_2S(O)_2$, $CH_3CH_2CH_2S(O)_2$, $(CH_3)_2CHS(O)_2$ and the different butylsulfonyl, pentylsulfonyl and hexylsulfonyl isomers. "Alkylamino", "dialkylamino", and the like, are defined analogously to the above examples.

The term "carbocycle" includes "aromatic carbocyclic ring system", which denotes fully aromatic carbocycles and carbocycles in which at least one ring of a polycyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied), and

"nonaromatic carbocyclic ring system", which denotes fully saturated carbocycles as well as partially or fully unsaturated carbocycles where the Hückel rule is not satisfied by any of the rings in the ring system. "Cycloalkyl" includes, for example, cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl.

The term "hetero" in connection with rings refers to a ring in which at least one ring atom is not carbon and which can contain 1 to 4 heteroatoms independently selected from the group consisting of nitrogen, oxygen and sulfur, provided that each ring contains no more than 4 nitrogens, no more than 2 oxygens and no more than 2 sulfurs. "Heterocycle" includes "aromatic heterocyclic ring system", which denotes fully aromatic heterocycles and heterocycles in which at least one ring of a polycyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied), and "nonaromatic heterocyclic ring system", which denotes fully saturated heterocycles as well as partially or fully unsaturated heterocycles where the Hückel rule is not satisfied by any of the rings in the ring system. The heterocyclic ring systems can be attached through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

The term "halogen", either alone or in compound words such as "haloalkyl", includes fluorine, chlorine, bromine or iodine. Further, when used in compound words such as "haloalkyl", said alkyl may be partially or fully substituted with halogen atoms which may be the same or different. Examples of "haloalkyl" include F_3C, $ClCH_2$, CF_3CH_2 and CF_3CCl_2. The terms "haloalkenyl", "haloalkynyl", "haloalkoxy", "haloalkylthio", and the like, are defined analogously to the term "haloalkyl". Examples of "haloalkenyl" include $(Cl)_2C{=}CHCH_2$ and $CF_3CH_2CH{=}CHCH_2$. Examples of "haloalkynyl" include $HC{\equiv}CCHCl$, $CF_3C{\equiv}C$, $CCl_3C{\equiv}C$ and $FCH_2C{\equiv}CCH_2$. Examples of "haloalkoxy" include CF_3O, CCl_3CH_2O, $HCF_2CH_2CH_2O$ and CF_3CH_2O. Examples of "haloalkylthio" include CCl_3S, CF_3S, CCl_3CH_2S and $ClCH_2CH_2CH_2S$. Examples of "haloalkylsulfinyl" include $CF_3S(O)$, $CCl_3S(O)$, $CF_3CH_2S(O)$ and $CF_3CF_2S(O)$. Examples of "haloalkylsulfonyl" include $CF_3S(O)_2$, $CCl_3S(O)_2$, $CF_3CH_2S(O)_2$ and $CF_3CF_2S(O)_2$.

Examples of "alkylcarbonyl" include $C(O)CH_3$, $C(O)CH_2CH_2CH_3$ and $C(O)CH(CH_3)_2$. Examples of "alkoxycarbonyl" include $CH_3OC(=O)$, $CH_3CH_2OC(=O)$, $CH_3CH_2CH_2OC(=O)$, $(CH_3)_2CHOC(=O)$ and the different butoxy- or pentoxycarbonyl isomers. Examples of "alkylaminocarbonyl" include $CH_3NHC(=O)$, $CH_3CH_2NHC(=O)$, $CH_3CH_2CH_2NHC(=O)$, $(CH_3)_2CHNHC(=O)$ and the different butylamino- or pentylaminocarbonyl isomers. Examples of "dialkylaminocarbonyl" include $(CH_3)_2NC(=O)$, $(CH_3CH_2)_2NC(=O)$, $CH_3CH_2(CH_3)NC(=O)$, $CH_3CH_2CH_2(CH_3)NC(=O)$ and $(CH_3)_2CHN(CH3)C(=O)$. Examples of "alkoxyalkylcarbonyl" include $CH_3OCH_2C(=O)$, $CH_3OCH_2CH_2C(=O)$, $CH_3CH_2OCH_2C(=O)$, $CH_3CH_2CH_2CH_2OCH_2C(=O)$ and $CH_3CH_2OCH_2CH_2C(=O)$. Examples of "alkylthioalkylcarbonyl" include $CH_3SCH_2C(=O)$, $CH_3SCH_2CH_2C(=O)$,

$CH_3CH_2SCH_2C(=O)$, $CH_3CH_2CH_2CH_2SCH_2C(=O)$ and $CH_3CH_2SCH_2CH_2C(=O)$. Examples of "alkylaminoalkylcarbonyl" include $CH_3NHCH_2C(=O)$, $CH_3NHCH_2CH_2C(=O)$, $CH_3CH_2NHCH_2C(=O)$, $CH_3CH_2CH_2CH_2NHCH_2C(=O)$ and $CH_3CH_2NHCH_2CH_2C(=O)$.

The total number of carbon atoms in a substituent group is indicated by the "C_i-C_j" prefix where i and j are numbers from 1 to 21. For example, C_1-C_3 alkylsulfonyl designates methylsulfonyl through propylsulfonyl; C_2 alkoxyalkyl designates CH_3OCH_2; C_3 alkoxyalkyl designates, for example, $CH_3CH(OCH_3)$, $CH_3OCH_2CH_2$ or $CH_3CH_2OCH_2$; and C_4 alkoxyalkyl designates the various isomers of an alkyl group substituted with an alkoxy group containing a total of four carbon atoms, examples including $CH_3CH_2CH_2OCH_2$ and $CH_3CH_2OCH_2CH_2$. In the above recitations, when a compound of Formula I is comprised of one or more heterocyclic rings, all substituents are attached to these rings through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

When a compound is substituted with a substituent bearing a subscript that indicates the number of said substituents can exceed 1, said substituents (when they exceed 1) are independently selected from the group of defined substituents. Further, when the subscript indicates a range, e.g. $(R)_{i-j}$, then the number of substituents may be selected from the integers between i and j inclusive.

When a group contains a substituent which can be hydrogen, for example R^1 or R^2, then, when this substituent is taken as hydrogen, it is recognized that this is equivalent to said group being unsubstituted.

Compounds of this invention can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers and geometric isomers. One skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. Accordingly, the present invention comprises compounds selected from Formula I, *N*-oxides and agriculturally suitable salts thereof. The compounds of the invention may be present as a mixture of stereoisomers, individual stereoisomers, or as an optically active form.

One skilled in the art will appreciate that not all nitrogen containing heterocycles can form *N*-oxides since the nitrogen requires an available lone pair for oxidation to the oxide; one skilled in the art will recognize those nitrogen containing heterocycles which can form *N*-oxides. One skilled in the art will also recognize that tertiary amines can form *N*-oxides. Synthetic methods for the preparation of *N*-oxides of heterocycles and tertiary amines are very well known by one skilled in the art including the oxidation of heterocycles and tertiary amines with peroxy acids such as peracetic and *m*-chloroperbenzoic acid (MCPBA),

hydrogen peroxide, alkyl hydroperoxides such as *t*-butyl hydroperoxide, sodium perborate, and dioxiranes such as dimethydioxirane. These methods for the preparation of *N*-oxides have been extensively described and reviewed in the literature, see for example: T. L. Gilchrist in *Comprehensive Organic Synthesis*, vol. 7, pp 748-750, S. V. Ley, Ed., Pergamon Press; M. Tisler and B. Stanovnik in *Comprehensive Heterocyclic Chemistry*, vol. 3, pp 18-20, A. J. Boulton and A. McKillop, Eds., Pergamon Press; M. R. Grimmett and B. R. T. Keene in *Advances in Heterocyclic Chemistry*, vol. 43, pp 149-161, A. R. Katritzky, Ed., Academic Press; M. Tisler and B. Stanovnik in *Advances in Heterocyclic Chemistry*, vol. 9, pp 285-291, A. R. Katritzky and A. J. Boulton, Eds., Academic Press; and G. W. H. Cheeseman and E. S. G. Werstiuk in *Advances in Heterocyclic Chemistry*, vol. 22, pp 390-392, A. R. Katritzky and A. J. Boulton, Eds., Academic Press.

The salts of the compounds of the invention include acid-addition salts with inorganic or organic acids such as hydrobromic, hydrochloric, nitric, phosphoric, sulfuric, acetic, butyric, fumaric, lactic, maleic, malonic, oxalic, propionic, salicylic, tartaric, 4-toluenesulfonic or valeric acids. The salts of the compounds of the invention also include those formed with organic bases (e.g., pyridine, ammonia, or triethylamine) or inorganic bases (e.g., hydrides, hydroxides, or carbonates of sodium, potassium, lithium, calcium, magnesium or barium) when the compound contains an acidic group such as a carboxylic acid or phenol.

Preferred compounds for reasons of cost, ease of synthesis and/or biological efficacy are:

Preferred 1. Compounds of Formula I above, and agriculturally suitable salts thereof, wherein

R^1 is H, SH, SO_3H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl or C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^2 is H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxycarbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted with one or more R^{11}; or R^6 is

C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12};

each R^7 is independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

each R^8 is independently halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy or C_1-C_4 alkylthio; and

each R^{11} is independently halogen, CO_2H, $CONH_2$, NO_2, hydroxy, C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_1-C_6 alkylsulfonyl, C_1-C_6 haloalkylthio, C_1-C_6 haloalkylsulfinyl, C_1-C_6 haloalkylsulfonyl, C_1-C_6 alkylamino, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_4-C_{10} alkylaminoalkylcarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_8 dialkylaminoalkylcarbonyl, C_3-C_9 alkylthioalkylcarbonyl, C_2-C_8 dialkylphosphoryl, C_2-C_8 dialkylphosphinyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy.

Preferred 2. Compounds of Preferred 1 wherein

R^1 and R^2 are each independently H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or phenyl optionally substituted with 1 to 3 R^9;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl or C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or phenyl optionally substituted with 1 to 3 R^9;

R^4 and R^5 are each independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, halogen, CO_2H, $CONH_2$, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_6 alkylcarbonyl, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkylaminocarbonyl or C_2-C_8 dialkylaminocarbonyl;

R^6 is C_5-C_{15} alkyl, C_5-C_{15} alkenyl or C_5-C_{15} alkynyl, each optionally substituted with one or more R^{11}; or R^6 is C_1-C_4 alkyl substituted with one or more R^{12};

each R^7 is independently C_1-C_6 alkyl, optionally substituted with one or more R^8;

A is a direct bond, O or $S(O)_n$; and

m is 0 or 1.

Preferred 3. Compounds of Preferred 2 wherein

A is attached to the remainder of Formula I at the 4 position of the benzene ring.

Preferred 4. Compounds of Preferred 3 wherein

R^1, R^2 and R^3 are each independently H or C_1-C_{10} alkyl;

R^4 and R^5 are each independently, halogen, C_1-C_6 alkyl or C_1-C_6 haloalkyl;

R^5 is attached to the remainder of Formula I at the 5 position of the benzene ring; and

m is 1.

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is alkyl, optionally substituted with halogen or C_1-C_6 alkoxy. Also of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is alkenyl, optionally substituted with halogen. Examples include compounds wherein R^6 is selected from the group consisting of (a) the branched alkyl moieties $CH(CH_3)(CH_2)_3CH_3$, $CH(CH_3)(CH_2)_4CH_3$, $CH(CH_3)(CH_2)_5CH_3$, $CH(CH_3)(CH_2)_6CH_3$, $CH(CH_3)(CH_2)_7CH_3$, $CH(CH_3)(CH_2)_8CH_3$, $CH(C_2H_5)(CH_2)_3CH_3$, $CH(C_2H_5)(CH_2)_4CH_3$, $CH_2CH(CH_3)(CH_2)_2CH_3$, $CH_2CH(CH_3)(CH_2)_4CH_3$, $CH_2CH(C_2H_5)CH_2CH_2CH_2CH_3$, $(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$, $(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$, $(CH_2)_2CH(CH_3)(CH_2)_3C(CH_3)_3$, $(CH_2)_2C(CH_3)_3$, $(CH_2)_3C(CH_3)_3$, $(CH_2)_3C(C_2H_5)_3$, $(CH_2)_3CH(C_2H_5)_3$, $(CH_2)_3CH(CH_3)_2$, $(CH_2)_4CH(CH_3)_2$, $(CH_2)_5CH(CH_3)_2$, $CH(CH_2CH_2CH_2CH_3)_2$, $CH(CH_2CH_2CH_3)(CH_2)_3CH_3$, $CH(CH_2CH_2CH_2CH_2CH_3)_2$, $CH(C_2H_5)CH_2CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_2CH(CH_3)_2$, $CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$, $CH(CH_2CH_2CH(CH_3)_2)_2$, $CH(CH_2CH_2CH_3)_2$ and $CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$, (b) the linear alkyl moieties $(CH_2)_4CH_3$, $(CH_2)_5CH_3$, $(CH_2)_6CH_3$, $(CH_2)_7CH_3$, $(CH_2)_8CH_3$, $(CH_2)_9CH_3$, $(CH_2)_{10}CH_3$, (c) the branched alkenyl moieties $(CH_2)_2CH=C(CH_3)_2$, $(CH_2)_5C(CH_3)=CH_2$, $(CH_2)_6C(CH_3)=CH_2$, $(CH_2)_7C(CH_3)=CH_2$, $CH_2CH=C(CH_3)_2$, $CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$, $CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$, $(CH_2)_3C(=CH_2)CH(CH_3)_2$, $CH_2CH=CHCH(CH_3)_2$, $CH_2CH=CHCH_2CH(CH_3)_2$, $CH_2CH=CHC(CH_3)_3$ and $CH_2CH=CHCH_2C(CH_3)_3$ and (d) the linear alkenyl moieties $(CH_2)_3CH=CH_2$, $(CH_2)_4CH=CH_2$, $(CH_2)_5CH=CH_2$, $(CH_2)_6CH=CH_2$, $(CH_2)_7CH=CH_2$, $(CH_2)_8CH=CH_2$ and $(CH_2)_9CH=CH_2$. Examples further include such compounds wherein R^6 is selected from said alkyl and alkenyl moieties (a), (b), (c) and (d) wherein at least one hydrogen has been replaced by halogen (e.g., compounds wherein R^6 is selected from said alkyl moieties wherein a CH_3 group has been replaced by a CF_3 group; and compounds wherein R^6 is selected from said alkenyl moieties wherein a $=CH_2$ group has been replaced by a $=CF_2$ group). Examples also include such compounds wherein R^6 is selected from said

alkyl moieties (a) and (b) wherein at least one hydrogen has been replaced by OCH_3, OC_2H_5, $OCH(CH_3)_2$ or $OC(CH_3)_3$.

Of particular note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is selected from the group consisting of $(CH_2)_3C(CH_3)_2OCH_3$, $(CH_2)_3C(CH_3)_2OC_2H_5$, $(CH_2)_3C(CH_3)_2OCH(CH_3)_2$, $(CH_2)_3C(CH_3)_2OC(CH_3)_3$, $(CH_2)_3C(CH_3)_2F$, $(CH_2)_3C(CH_3)_2Cl$ and $(CH_2)_3C(CH_3)_2Br$.

Preferred 5. Compounds of Preferred 4 wherein

R^1 is H;

R^2, R^3, R^4 and R^5 are each methyl; and

R^6 is C_6-C_{15} alkyl wherein at least one of the fourth and fifth carbon from A has one or no hydrogen attached or C_5-C_{15} 2-alkenyl wherein the fourth or fifth carbon from A has one or no hydrogen attached (In other words, R^6 is branched at the fourth and/or fifth carbon).

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 5) wherein R^6 is selected from the group consisting of (a) the alkyl moieties $(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$, $(CH_2)_3CH(CH_3)_2$, $CH(C_2H_5)CH_2CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_2CH(CH_3)_2$, $CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$ and $CH(CH_2CH_2CH(CH_3)_2)_2$ and (b) the alkenyl moieties $CH_2CH{=}CHCH(CH_3)_2$, $CH_2CH{=}CHCH_2CH(CH_3)_2$, $CH_2CH{=}CHC(CH_3)_3$ and $CH_2CH{=}CHCH_2C(CH_3)_3$.

Preferred 6. Compounds of Preferred 4 wherein

R^1 is H;

R^2, R^3, R^4 and R^5 are each methyl; and

R^6 is C_1-C_4 alkyl substituted with one or more substituents selected from the group consisting of C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_2-C_6 alkoxycarbonyl, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy.

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 6) wherein R^6 is alkyltrialkylsilyl. Also of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 6) wherein R^6 is alkyltrialkylsilyloxy. Examples include compounds wherein R^6 is selected from the group consisting of (e) the alkyltrialkylsilyl moieties $CH_2Si(CH_3)_3$, $CH_2CH_2Si(CH_3)_3$, $CH_2CH_2CH_2Si(CH_3)_3$, $CH_2CH_2CH_2CH_2Si(CH_3)_3$, $CH_2Si(C_2H_5)_3$, $CH_2CH_2Si(C_2H_5)_3$, $CH_2CH_2CH_2Si(C_2H_5)_3$, $CH_2CH_2CH_2CH_2Si(C_2H_5)_3$, $CH_2Si(CH(CH_3)_2)_3$, $CH_2CH_2Si(CH(CH_3)_2)_3$, $CH_2CH_2CH_2Si(CH(CH_3)_2)_3$, $CH_2CH_2CH_2CH_2Si(CH(CH_3)_2)_3$,

$CH_2Si(CH_3)_2C(CH_3)_3$, $CH_2CH_2Si(CH_3)_2C(CH_3)_3$, $CH_2CH_2CH_2Si(CH_3)_2C(CH_3)_3$ and $CH_2CH_2CH_2CH_2Si(CH_3)_2C(CH_3)_3$ and (f) the alkyltrialkylsilyloxy moieties $CH_2OSi(CH_3)_3$, $CH_2CH_2OSi(CH_3)_3$, $CH_2CH_2CH_2OSi(CH_3)_3$, $CH_2CH_2CH_2CH_2OSi(CH_3)_3$, $CH_2OSi(C_2H_5)_3$, $CH_2CH_2OSi(C_2H_5)_3$, $CH_2CH_2CH_2OSi(C_2H_5)_3$, $CH_2CH_2CH_2CH_2OSi(C_2H_5)_3$, $CH_2OSi(CH(CH_3)_2)_3$, $CH_2CH_2OSi(CH(CH_3)_2)_3$, $CH_2CH_2CH_2OSi(CH(CH_3)_2)_3$, $CH_2CH_2CH_2CH_2OSi(CH(CH_3)_2)_3$, $CH_2OSi(CH_3)_2C(CH_3)_3$, $CH_2CH_2OSi(CH_3)_2C(CH_3)_3$, $CH_2CH_2CH_2OSi(CH_3)_2C(CH_3)_3$ and $CH_2CH_2CH_2CH_2OSi(CH_3)_2C(CH_3)_3$.

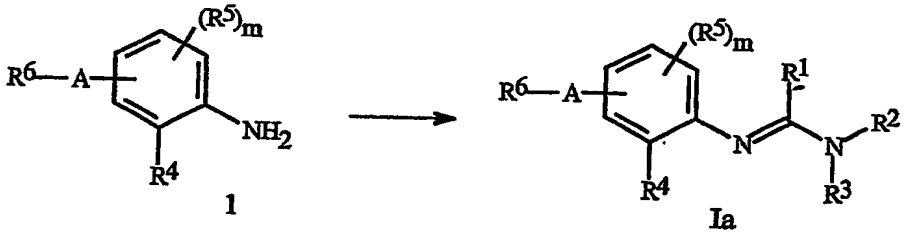
This invention also relates to fungicidal compositions comprising fungicidally effective amounts of the compounds of the invention and at least one additional component selected from the group consisting surfactants, solid diluents and liquid diluents. The preferred compositions of the present invention are those which comprise the above preferred compounds.

This invention also relates to a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of the compounds of the invention (e.g., as a composition described herein). The preferred methods of use are those involving the above preferred compounds.

The compounds of Formula I can be prepared by one or more of the following methods and variations as described in Schemes 1-9. The definitions of R^1 to R^{12}, A, m and n in the compounds of Formulae 1-13 below are as defined above in the Summary of the Invention unless otherwise stated. Compounds of Formulae Ia-Ie are various subsets of the compounds of Formula I, and all substituents for Formulae Ia-Ie are as defined above for Formula I unless otherwise stated.

As illustrated in Scheme 1, compounds of Formula Ia can be prepared from anilines of Formula 1. There are a variety of methods for this transformation. The following four methods are especially useful.

Scheme 1



wherein R^1 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle or C_3-C_6 heterocycle.

Method 1: Treatment of an aniline of Formula 1 with an acetal of formula $R^2R^3NC(R^1)(OR^{13})_2$, wherein R^{13} is an alkyl. For a leading reference to this method see, Toste et al, *Synth. Commun.* **1994**, *24(11)*, 1617-1624.

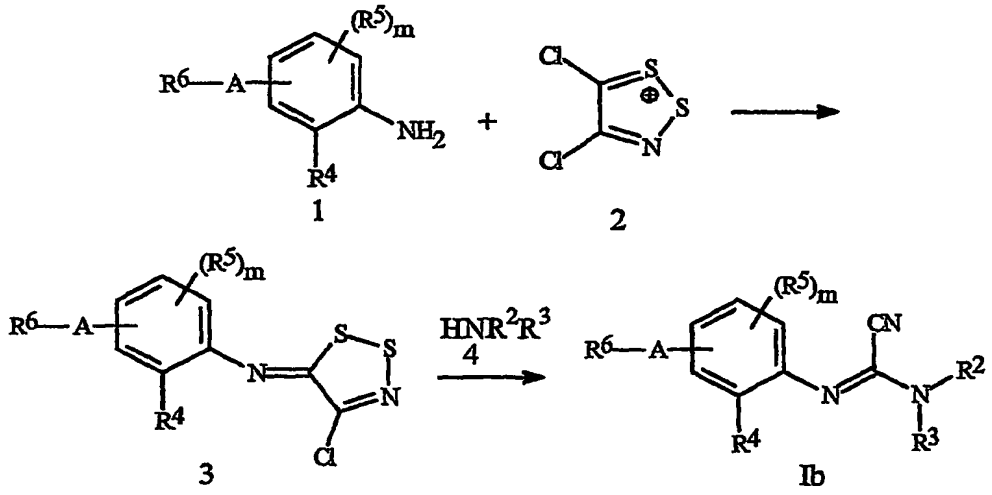
Method 2: Treatment of an aniline of Formula 1 with an amide of formula $R^1C(=O)NR^2R^3$ in the presence of a halogenating reagent such as, but not limited to, $POCl_3$ or $SOCl_2$. For a leading reference to this method see, Bergman et al, *Tetrahedron*, **1990**, *46(17)*, 6058-6112.

Method 3: Treatment of an aniline of Formula 1 with an orthoester of formula $R^1C(OR^{13})_3$, wherein R^{13} is alkyl, to form a corresponding iminoether followed by heating the iminoether with an amine of formula HNR^2R^3. For a leading reference to this method see, Pissiotas et al, US 4209319.

Method 4: Treatment of an aniline of Formula 1 with phosgene to form an isocyanate followed by reaction of the isocyanate with an amide of formula $R^1C(=O)NR^2R^3$. For a leading reference to this method see, Charles et al, WO 00/46184.

Compounds of Formula Ib, can be prepared by the method outlined in Scheme 2. Treatment of a compound of Formula 1 with 4,5-dichloro-1,2,3-dithiazolium chloride (Formula 2) affords the corresponding 4-chloro-5-(phenylimino)-5*H*-1,2,3-dithiazole (Formula 3). Reaction of the said dithiazole with an amine of Formula 4 in a suitable organic solvent such as, but not limited to, dichloromethane at room temperature provides the compound of Formula Ib. For a leading reference to this method see, Lee et al, *J. Org. Chem.*, **1993**, *58(25)*, 7001-7008.

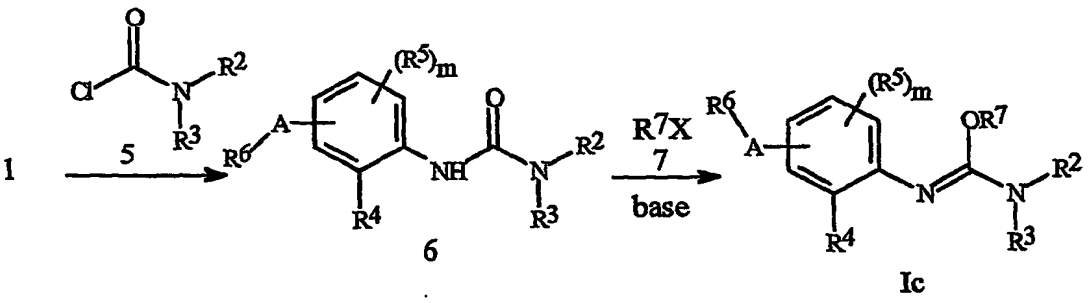
Scheme 2



Compounds of Formula Ic, can be prepared by the method outlined in Scheme 3. Reaction of an aniline of Formula 1 with a carbamoyl chloride of Formula 5 provides the

urea of Formula 6. The urea of Formula 6 is then *O*-alkylated to form the compound of Formula Ic by contact with an alkylating agent of Formula 7 (R^7X) in the presence of a base. In the alkylating agent of Formula 7, X is leaving group such as halogen (e.g., Br, I), $OS(O)_2CH_3$ (methanesulfonate), $OS(O)_2CF_3$, $OS(O)_2Ph$-*p*-CH_3 (*p*-toluenesulfonate), and the like. The suitable bases can be, for example but not limited to, potassium carbonate (K_2CO_3) or silver oxide (Ag_2O). For a leading reference to this method see, Curtis et al, *Aust. J. Chem.*, **1988**, *41(4)*, 585-595.

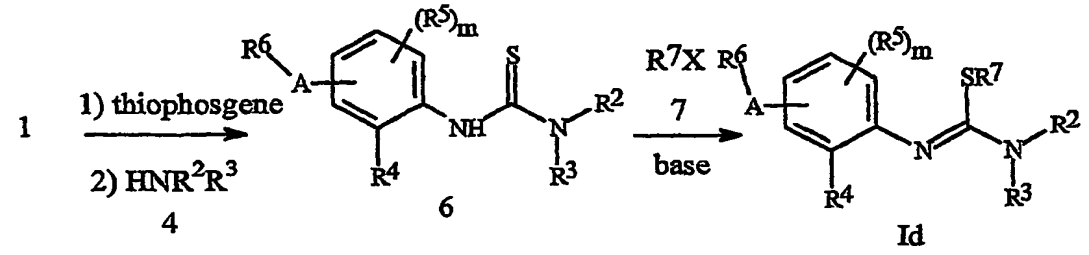
Scheme 3



wherein X is a leaving group.

Compounds of Formula Id, can be prepared by the method outlined in Scheme 4. Treatment of an aniline of Formula 1 with thiophosgene provides the corresponding isothiocyanate. The isothiocyanate is then reacted with an amine of Formula 4 to afford the thiourea of Formula 6. The thiourea of Formula 6 is then alkylated to give the compound of Formula Id by contact with an alkylating agent of Formula 7 (R^7X). The suitable bases can be, for example but not limited to, potassium hydroxide. For a leading reference to this method see, Filop et al, *Tetrahedron*, **1985**, *41(24)*, 5981-5988.

Scheme 4

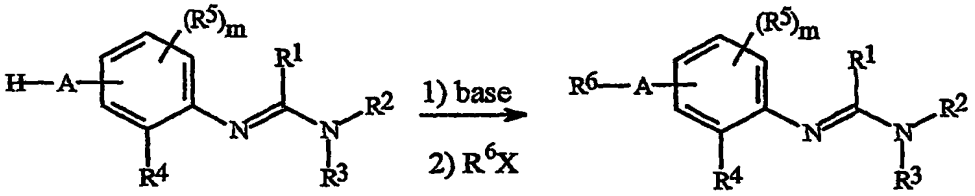


wherein X is a leaving group.

Of note is that R^2 and R^3 groups in compounds of Formula I can be converted to other R^2 and R^3 groups as defined above, by treatment with an appropriate amine or by acylation or alkylation when R^2 or R^3 is hydrogen.

As illustrated in Scheme 5, a compound of Formula I can also be prepared by alkylation of a compound of Formula 8 with an alkylating agent of Formula 9 in the presence of a base. Compounds of Formula 8 are known compounds or can be prepared by literature procedures (*J. Med. Chem.*, **1984**, *27(12)*, 1705-10; EP 94052 and WO 00/46184). In the alkylating agent of Formula 9, X is a nucleophilic reaction leaving group as defined above for Formula 7. The reaction is conducted in the presence of at least one equivalent of a base, preferably from 1 to 2 equivalents. Suitable bases include inorganic bases, such as alkali metal (such as lithium, sodium or potassium) hydrides, carbonates and hydroxides, and organic bases, such as triethylamine, diisopropylethylamine and 1,8-diazabicyclo-[5.4.0]undec-7-ene. The reaction is generally conducted in a solvent, which can comprise aromatic solvents, such as benzene and toluene, ethers, such as tetrahydrofuran and diethyl ether, and polar aprotic solvents, such as acetonitrile, *N,N*-dimethylformamide, and the like. The reaction is generally conducted between about -20 and 150 °C, and preferably between 20 and 140 °C. The reaction time can range from 1 hour to 7 days. The compound of Formula I can be isolated by conventional techniques such as extraction. Further experimental details for the method of Scheme 5 are illustrated in Example 1.

Scheme 5



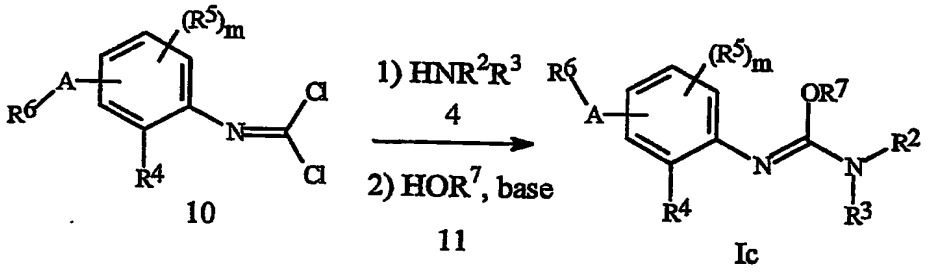
8 9 I

wherein A is O, S or NR^{10}; and X is a leaving group.

In addition, reductive amination of a compound of Formula 8, wherein A is NH, in the presence of an aldehyde or a ketone can also provide the compound of Formula I, wherein R^6 is an optionally substituted alkyl group. Reaction conditions for the reductive amination are taught in *J. Med. Chem.*, **1984**, *17(12)*, 1705-1710, and references cited within.

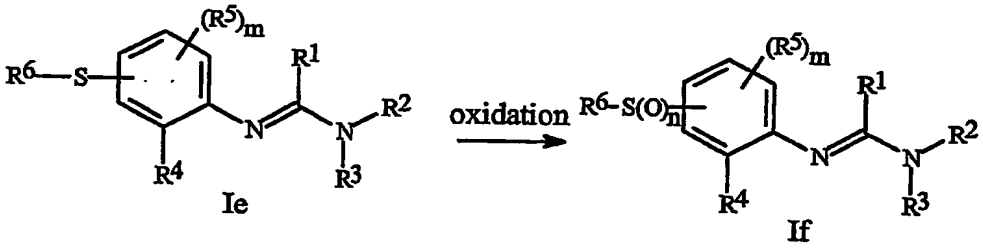
As an alternative to the method illustrated in Scheme 3, compounds of Formula Ic can also be prepared by the method outlined in Scheme 6. Heating a phenyl isocyanide dichloride of Formula 10 with an amine of Formula 4 provides the corresponding imidoyl intermediate. Treatment of the imidoyl intermediate with an alcohol of Formula 11 in the presence of an inert base such as, but not limited to, triethylamine, gives the compound of Formula Ic. For references to this method see, Filop et al, *Izv. Akad. Nauk SSSR, Ser. Khim.*, **1989**, *(11)*, 2596-2601, and references cited within. The phenyl isocyanide dichloride of Formula 10 can be prepared by literature procedures (*J. Chem. Soc., Perkin Trans. 1*, **1987**, *(5)*, 1069-1076; *Tetrahedron Lett.*, **1982**, *23(35)*, 3539-3542; *Chem. Ber.*, **1987**, *120(3)*, 421-424).

Scheme 6



Compounds of Formula If can be prepared by oxidation of compounds of Formula Ie as illustrated in Scheme 7. The oxidizing agent can be peracetic acid, hydrogen peroxide, potassium permanganate, sodium periodate or 3-chloroperoxybenzoic acid. The solvent can be, for example but not limited to, dichloromethane, acetic acid or water. Detailed conditions for this method can be found in *J. Med. Chem.*, **1996**, *39(26)*, 5072-5082, *J. Med. Chem.*, **1983**, *26(1)*, 107-110, and references cited within.

Scheme 7



wherein n is 1 or 2.

Compounds of Formula 1 can be prepared by reduction of the nitro group in compounds of Formula 12. There are many methods for this reduction reaction. Preferred methods include stannous chloride reduction in concentrated hydrochloric acid (*J. Med.*

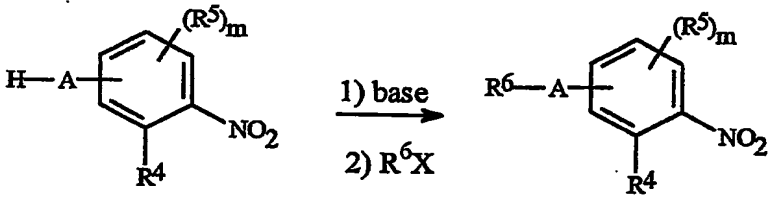
Chem., **1984**, *24(12)*, 1705-1710) and iron powder reduction in a solution of acetic acid and water (*J. Org. Chem.*, **2001**, *66(13)*, 4563-4575).

Scheme 8

12 1

As illustrated in Scheme 9, compounds of Formula 12 can be prepared by alkylation of compounds of Formula 13 with an alkylating agent of Formula 9 in the presence of a base. The reaction conditions for this alkylation are already described for the conversion of the compounds of Formula 8 to the compounds of Formula I in Scheme 5. Compounds of Formula 13 are known compounds or can be prepared by literature procedures (*Can. J. Chem.*, **1984**, *62(8)*, 1446-51; *Aust. J. Chem.*, **1991**, *44(1)*, 151-6).

Scheme 9



13 9 12

wherein A is O, S or NR^{10}; and X is a leaving group.

Alternatively, compounds of Formula 12, wherein A is O, S or NR^{10} and R^6 is an optionally substituted alkyl group, can also be prepared from compounds of Formula 13 through a Mitsunobu reaction, which involves reaction of a compound of Formula 13 with the appropriate alcohol R^6OH. The general reaction conditions of Mitsunobu Reaction is well documented in the chemical literature. For a review of the Mitsunobu Reaction see Hughes, *Org. React.*, **1992**, *42*, 335-656 and references cited within.

Compounds of Formula 12, wherein A is a direct bond, are available by a variety of known methods. One skilled in art can prepare the compounds of Formula 12 by methods extensively described in the literature; see for example: *Synth. Commun.*, **2001**, *31(14)*, 2113-2117; *Synth. Commun.*, **1999**, *29(12)*, 2169-2174; *J. Chem. Res., Synop.*, **1998**, (8), *410*, 1701-1714; *J. Chem. Soc., Perkin Trans. 1*, **1998**, *(12)*, 1903-1912; *Synthesis*, **1982** *(10)*, 836-9; *J. Org. Chem.*, **1977**, *42(24)*, 3907-9.

It is recognized that some reagents and reaction conditions described above for preparing compounds of Formula I may not be compatible with certain functionalities present in the intermediates. In these instances, the incorporation of protection/deprotection sequences or functional group interconversions into the synthesis will aid in obtaining the desired products. The use and choice of the protecting groups will be apparent to one skilled in chemical synthesis (see, for example, Greene, T. W.; Wuts, P. G. M. *Protective Groups in Organic Synthesis*, 2nd ed.; Wiley: New York, 1991). One skilled in the art will recognize that, in some cases, after the introduction of a given reagent as it is depicted in any individual scheme, it may be necessary to perform additional routine synthetic steps not described in detail to complete the synthesis of compounds of Formula I. One skilled in the art will also recognize that it may be necessary to perform a combination of the steps illustrated in the above schemes in an order other than that implied by the particular sequence presented to prepare the compounds of Formula I.

One skilled in the art will also recognize that compounds of Formula I and the intermediates described herein can be subjected to various electrophilic, nucleophilic, radical, organometallic, oxidation, and reduction reactions to add substituents or modify existing substituents.

Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except for chromatographic solvent mixtures or where otherwise indicated. Parts and percentages for chromatographic solvent mixtures are by volume unless otherwise indicated. ^{1}H NMR spectra are reported in ppm downfield from tetramethylsilane; s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, dd = doublet of doublets, dt = doublet of triplets, br s = broad singlet.

EXAMPLE 1

Preparation of *N'*-[2,5-Dimethyl-4-[(3-methyl-2-butenyl)-oxy]phenyl]-*N,N*-dimethylmethanimidamide

The title compound was prepared from *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (prepared as described in WO00/46184). To a suspension of *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (0.77 g, 4 mmol) in tetrahydrofuran (34 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (170 mg, 4.25 mmol). The mixture was then stirred at room temperature for about 45 minutes followed by addition of 4-bromo-2-methyl-2-butene (0.72 g, 4.8 mmol). The resulting reaction mixture was stirred at room temperature for 2 days and then poured into diethyl ether (250 mL). The organic layer was then washed with 1*N* aqueous sodium hydroxide solution (2x200 mL). The organic layer was then dried over $MgSO_4$ and filtered.

The filtrate was concentrated to give the title compound (1.02 g), a compound of the present invention, as a brown oil.

^{1}H NMR ($CDCl_3$): δ 1.72 (s,3H), 1.78 (s,3H), 2.17 (s,3H), 2.24 (s,3H), 2.99 (s,6H), 4.46 (d,2H), 5.5 (t,1H), 6.55 (s,1H), 6.66 (s,1H), 7.38 (s,1H).

EXAMPLE 2

Preparation of *N'*-[2,5-Dimethyl-4-[(4-methylpentyl)oxy]-phenyl]-*N,N*-dimethylmethanimidamide

To a suspension of *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (0.52 g, 2.7 mmol) in tetrahydrofuran (~10 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (120 mg, 3 mmol). After the addition, the mixture was stirred at room temperature for 30 minutes, and 1-bromo-4-methylpentane (0.55 g, 3.3 mmol) was added. The resulting reaction mixture was heated at reflux for 24 hours, cooled to room temperature and stirred at room temperature overnight. The reaction mixture was then poured into diethyl ether (100 mL). The organic layer was washed with 1N aqueous sodium hydroxide solution (3x100 mL), dried over $MgSO_4$ and filtered. The filtrate was concentrated to give the title compound (0.7 g), a compound of this invention, as an oil.

^{1}H NMR ($CDCl_3$): δ 0.91 (d,6H), 1.28-1.82 (m,5H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.89 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).

EXAMPLE 3

Preparation of *N'*-[2,5-Dimethyl-4-[3-(trimethylsilyl)propoxy]phenyl]-*N,N*-dimethylmethanimidamide

To a suspension of *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (0.52 g, 2.7 mmol) in *p*-dioxane (10 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (120 mg, 3 mmol). After the addition, the mixture was stirred at room temperature for 21 minutes, and (3-chloropropyl)trimethylsilane (0.5 g, 3.3 mmol) was added. The resulting reaction mixture was heated at reflux for 4 days and then cooled to room temperature. The reaction mixture was poured into diethyl ether (100 mL). The organic layer was washed with 1*N* aqueous sodium hydroxide solution (3x100 mL). The organic layer was then dried over $MgSO_4$ and filtered. The filtrate was concentrated and then dried in a vacuum oven at 90 °C overnight to give the title compound (0.16 g), a compound of this invention, as an oil.

^{1}H NMR ($CDCl_3$): δ 0.02 (t,9H), 0.6 (m,2H), 1.7-1.82 (m,2H), 2.17 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.87 (t,2H), 6.54 (s,1H), 6.62 (s,1H), 7.38 (s,1H).

EXAMPLE 4

Preparation of *N'*-[4-[(1-Butylpentyl)oxy]-2,5-dimethylphenyl]-*N,N*-dimethylmethanimidamide

Step A: Preparation of 1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzene

Diisopropyl azodicarboxylate (0.570 g, 2.82 mmol) was added to the solution of triphenylphosphine (0.739 g, 2.82 mmol) in tetrahydrofuran (15 mL) at 0 °C dropwise. The mixture was stirred at the 0 °C for additional 30 minutes. A mixture of 2,5-dimethyl-4-nitrophenol (0.315 g, 1.9 mmol) and 5-nonanol (0.288 g, 2 mmol) in tetrahydrofuran (10 mL) was added dropwise to the above cold solution. Then the reaction mixture was stirred at the 0 °C for 30 min and at room temperature for 1 hour. Tetrahydrofuran was removed under reduced pressure, and the residue was triturated with hexane (100 mL) and filtered. The precipitate was washed with hexane (50 mL). Hexane was removed under reduced pressure and the residue was purified by column chromatography eluted with dichloromethane to give the title compound (0.4 g) as an oil.

^{1}H NMR ($CDCl_3$): δ 0.9 (t,6 H), 1.2-1.4 (m,8 H), 1.6-1.7 (m,4H), 2.15 (s,3H), 2.6 (s,3H), 4.35 (m,H), 6.6 (s,1H), 7.9 (s,1H).

Step B: Preparation of 1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzenamine

1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzene (i.e. the product from Step A) (0.4 g, 1.39 mmol) was reduced by catalytic hydrogenation using palladium charcoal catalyst (10 wt %, 0.2 g) in ethanol (~20 mL) at 40 psi (276 KPa) hydrogen pressure above ambient for 8 hours. The catalyst was removed by filtration, and the filtrate was concentrated under reduced pressure. The residue was purified by column chromatography eluted with dichloromethane to give the title compound (0.35 g) as an oil.

^{1}H NMR ($CDCl_3$): δ 0.9 (t,6 H), 1.2-1.4 (m,8 H), 1.6-1.7 (m,4H), 2.15 (s,6H), 3.25 (m, 2H), 4.0 (m,H), 6.42s,1H), 6.5 (s,H).

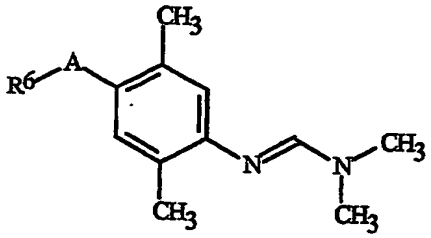
Step C: Preparation of *N'*-[4-[(1-Butylpentyl)oxy]-2,5-dimethylphenyl]-*N,N*-dimethylmethanimidamide

Dimethylformamide dimethyl acetal (~5 mL) was added to 1-[(1-butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzenamine (i.e. the product from Step B) (350 mg) under argon, and the mixture was heated to 100 °C for two hours. The reaction mixture was cooled to room temperature and partitioned between ether (50 mL) and water (50 mL). The organic layer was washed sequentially with water (50 mL) and brine, dried (Na_2SO_4), filtered and concentrated to give the title compound (300 mg), a compound of this invention, as an reddish oil.

^{1}H NMR ($CDCl_3$): δ 0.9 (t,6 H), 1.2-1.4 (m,8 H), 1.5-1.7 (m,4H), 2.15 (s,3H), 2.2 (s,3H), 3.0 (s,6H), 4.1 (m,H), 6.5 (s,1H), 6.6 (s,1H), 7.4 (s,1H).

By the procedures described herein together with methods known in the art, the following compounds of Tables 1 to 8 can be prepared.

TABLE 1



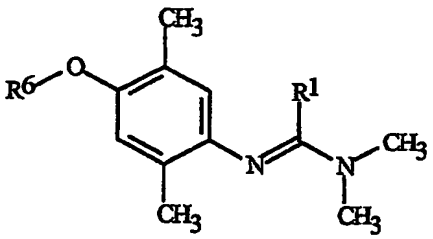
A	R^6
O	$(CH_2)_4CH_3$
O	$(CH_2)_3C(CH_3)_2OC_2H_5$
O	$(CH_2)_5CH_3$
O	$(CH_2)_6CH_3$
O	$(CH_2)_3C(CH_3)_2Br$
O	$(CH_2)_7CH_3$
O	$(CH_2)_3CH(CH_3)_2$
O	$(CH_2)_3C(CH_3)_3$
O	$(CH_2)_3Si(CH_3)_3$
O	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
O	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
O	$(CH_2)_3CH(CH_3)C_2H_5$
O	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
O	$(CH_2)_2OC(CH_3)_3$
O	$(CH_2)_2SC(CH_3)_3$
O	$(CH_2)_2SCH(CH_3)_2$
O	$CH_2CH=CHC(CH_3)_3$
O	$CH_2CH=CHCH(CH_3)_2$
O	$(CH_2)_2S(=O)C(CH_3)_3$
O	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
O	$(CH_2)_2OCH(CH_3)_2$
O	$(CH_2)_3OC(CH_3)_3$
O	$(CH_2)_3P(=O)(CH_3)_2$
O	$CH_2C(=O)CH_2C(CH_3)_3$
O	$CH(CH_3)(CH_2)_3CH_3$
O	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
O	$CH(CH_3)CH_2CH_2C(CH_3)_3$
O	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
O	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
O	$CH(CH_2CH_2CH(CH_3)_2)_2$

A	R^6
S	$(CH_2)_4CH_3$
S	$(CH_2)_3C(CH_3)_2OC_2H_5$
S	$(CH_2)_5CH_3$
S	$(CH_2)_6CH_3$
S	$(CH_2)_3C(CH_3)_2Br$
S	$(CH_2)_7CH_3$
S	$(CH_2)_3CH(CH_3)_2$
S	$(CH_2)_3C(CH_3)_3$
S	$(CH_2)_3Si(CH_3)_3$
S	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
S	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
S	$(CH_2)_3CH(CH_3)C_2H_5$
S	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
S	$(CH_2)_2OC(CH_3)_3$
S	$(CH_2)_2SC(CH_3)_3$
S	$(CH_2)_2SCH(CH_3)_2$
S	$CH_2CH=CHC(CH_3)_3$
S	$CH_2CH=CHCH(CH_3)_2$
S	$(CH_2)_2S(=O)C(CH_3)_3$
S	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
S	$(CH_2)_2OCH(CH_3)_2$
S	$(CH_2)_3OC(CH_3)_3$
S	$(CH_2)_3P(=O)(CH_3)_2$
S	$CH_2C(=O)CH_2C(CH_3)_3$
S	$CH(CH_3)(CH_2)_3CH_3$
S	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
S	$CH(CH_3)CH_2CH_2C(CH_3)_3$
S	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
S	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
S	$CH(CH_2CH_2CH(CH_3)_2)_2$

A	R^6	A	R^6
O	$CH_2CH_2CH_2N(CH_3)_2$	S	$CH_2CH_2CH_2N(CH_3)_2$
O	$CH_2CH_2N(CH_3)C(CH_3)_3$	S	$CH_2CH_2N(CH_3)C(CH_3)_3$
O	$CH_2CH_2N(CH_3)CH(CH_3)_2$	S	$CH_2CH_2N(CH_3)CH(CH_3)_2$
O	$CH_2CH=C(CH_3)_2$	S	$CH_2CH=C(CH_3)_2$
O	$(CH_2)_3C(CH_3)_2OCH_3$	S	$(CH_2)_3C(CH_3)_2OCH_3$
O	$(CH_2)_3C(CH_3)_2Cl$	S	$(CH_2)_3C(CH_3)_2Cl$
O	$CH_2CH_2CH=C(CH_3)_2$	S	$CH_2CH_2CH=C(CH_3)_2$
O	$(CH_2)_8CH_3$	S	$(CH_2)_8CH_3$
O	$(CH_2)_9CH_3$	S	$(CH_2)_9CH_3$
O	$(CH_2)_{11}CH_3$	S	$(CH_2)_{11}CH_3$
O	$C(=O)OCH_2C(CH_3)_3$	S	$C(=O)OCH_2C(CH_3)_3$
O	$(CH_2)_4CH(CH_3)_2$	S	$(CH_2)_4CH(CH_3)_2$
O	$C(=O)OCH(C_2H_5)C(CH_3)_3$	S	$C(=O)OCH(C_2H_5)C(CH_3)_3$
O	$C(=O)OC(CH_3)_2C(CH_3)_3$	S	$C(=O)OC(CH_3)_2C(CH_3)_3$
O	$C(=O)NHCH_2C(CH_3)_3$	S	$C(=O)NHCH_2C(CH_3)_3$
O	$C(=O)N(CH_3)CH_2C(CH_3)_3$	S	$C(=O)N(CH_3)CH_2C(CH_3)_3$
O	$CH_2CH_2CH_2CH=C(CH_3)_2$	S	$CH_2CH_2CH_2CH=C(CH_3)_2$
O	$C(=O)CH_2SC(CH_3)_3$	S	$C(=O)CH_2SC(CH_3)_3$
O	$(CH_2)_4Cl$	S	$(CH_2)_4Cl$
O	$(CH_2)_5Cl$	S	$(CH_2)_5Cl$
O	$(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$	S	$(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$
O	(S)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$	S	(S)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$
O	(R)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$	S	(R)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$
O	$(CH_2)_2CH(CH_3)_2$	S	$(CH_2)_2CH(CH_3)_2$
O	$(CH_2)_2C(CH_3)_3$	S	$(CH_2)_2C(CH_3)_3$
O	$CH_2C(=O)C(CH_3)_3$	S	$CH_2C(=O)C(CH_3)_3$
O	$CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$	S	$CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$
O	$CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$	S	$CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$
O	$(CH_2)_3CH=CH_2$	S	$(CH_2)_3CH=CH_2$
O	$(CH_2)_4CH=CH_2$	S	$(CH_2)_4CH=CH_2$
O	$CH(C_2H_5)_2$	S	$CH(C_2H_5)_2$
O	$CH(CH_2CH_2CH_3)_2$	S	$CH(CH_2CH_2CH_3)_2$
O	$CH(CH_2CH_2CH_2CH_3)_2$	S	$CH(CH_2CH_2CH_2CH_3)_2$
O	$CH(CH_2CH_2CH_3)CH_2CH_2CH_2CH_3$	S	$CH(CH_2CH_2CH_3)CH_2CH_2CH_2CH_3$
O	$CH(CH_3)CH_2CH_2CH(CH_3)(C_2H_5)$	S	$CH(CH_3)CH_2CH_2CH(CH_3)(C_2H_5)$
O	$CH(CH_2CH_2CH_2CH_2CH_3)_2$	S	$CH(CH_2CH_2CH_2CH_2CH_3)_2$
O	$CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$	S	$CH(CH_2CH_2CH_2CH_3)(CH_2)_6CH_3$

A	R6	A	R6
O	$CH(C_2H_5)CH_2CH_2C(=CH_2)CH_3$	S	$CH(C_2H_5)CH_2CH_2C(=CH_2)CH_3$

TABLE 2



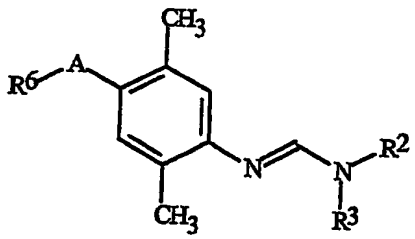
R1	R6	R1	R6
CH_3	$(CH_2)_4CH_3$	OCH_3	$(CH_2)_4CH_3$
CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$	OCH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	$(CH_2)_5CH_3$	OCH_3	$(CH_2)_5CH_3$
CH_3	$(CH_2)_6CH_3$	OCH_3	$(CH_2)_6CH_3$
CH_3	$(CH_2)_3C(CH_3)_2Br$	OCH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	$(CH_2)_7CH_3$	OCH_3	$(CH_2)_7CH_3$
CH_3	$(CH_2)_3CH(CH_3)_2$	OCH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	$(CH_2)_3C(CH_3)_3$	OCH_3	$(CH_2)_3C(CH_3)_3$
CH_3	$(CH_2)_3Si(CH_3)_3$	OCH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$	OCH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$	OCH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	$(CH_2)_3CH(CH_3)C_2H_5$	OCH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$	OCH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	$(CH_2)_2OC(CH_3)_3$	OCH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	$(CH_2)_2SC(CH_3)_3$	OCH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	$(CH_2)_2SCH(CH_3)_2$	OCH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	$CH_2CH=CHC(CH_3)_3$	OCH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	$CH_2CH=CHCH(CH_3)_2$	OCH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	$(CH_2)_2S(=O)C(CH_3)_3$	OCH_3	$(CH_2)_2S(=O)C(CH_3)_3$
CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$	OCH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	$(CH_2)_2OCH(CH_3)_2$	OCH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	$(CH_2)_3OC(CH_3)_3$	OCH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	$(CH_2)_3P(=O)(CH_3)_2$	OCH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	$CH_2C(=O)CH_2C(CH_3)_3$	OCH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	$CH(CH_3)(CH_2)_3CH_3$	OCH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$	OCH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$	OCH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$

R^1	R^6
CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	$CH_2CH=C(CH_3)_2$
CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	$CH_2CH_2CH=C(CH_3)_2$
C_2H_5	$(CH_2)_4CH_3$
C_2H_5	$(CH_2)_3C(CH_3)_2OC_2H_5$
C_2H_5	$(CH_2)_5CH_3$
C_2H_5	$(CH_2)_6CH_3$
C_2H_5	$(CH_2)_3C(CH_3)_2Br$
C_2H_5	$(CH_2)_7CH_3$
C_2H_5	$(CH_2)_3CH(CH_3)_2$
C_2H_5	$(CH_2)_3C(CH_3)_3$
C_2H_5	$(CH_2)_3Si(CH_3)_3$
C_2H_5	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
C_2H_5	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
C_2H_5	$(CH_2)_3CH(CH_3)C_2H_5$
C_2H_5	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
C_2H_5	$(CH_2)_2OC(CH_3)_3$
C_2H_5	$(CH_2)_2SC(CH_3)_3$
C_2H_5	$(CH_2)_2SCH(CH_3)_2$
C_2H_5	$CH_2CH=CHC(CH_3)_3$
C_2H_5	$CH_2CH=CHCH(CH_3)_2$
C_2H_5	$(CH_2)_2S(=O)C(CH_3)_3$
C_2H_5	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
C_2H_5	$(CH_2)_2OCH(CH_3)_2$
C_2H_5	$(CH_2)_3OC(CH_3)_3$
C_2H_5	$(CH_2)_3P(=O)(CH_3)_2$
C_2H_5	$CH_2C(=O)CH_2C(CH_3)_3$
C_2H_5	$CH(CH_3)(CH_2)_3CH_3$
C_2H_5	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
C_2H_5	$CH(CH_3)CH_2CH_2C(CH_3)_3$

R^1	R^6
OCH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
OCH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
OCH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
OCH_3	$CH_2CH_2CH_2N(CH_3)_2$
OCH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
OCH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
OCH_3	$CH_2CH=C(CH_3)_2$
OCH_3	$(CH_2)_3C(CH_3)_2OCH_3$
OCH_3	$(CH_2)_3C(CH_3)_2Cl$
OCH_3	$CH_2CH_2CH=C(CH_3)_2$
SCH_3	$(CH_2)_4CH_3$
SCH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
SCH_3	$(CH_2)_5CH_3$
SCH_3	$(CH_2)_6CH_3$
SCH_3	$(CH_2)_3C(CH_3)_2Br$
SCH_3	$(CH_2)_7CH_3$
SCH_3	$(CH_2)_3CH(CH_3)_2$
SCH_3	$(CH_2)_3C(CH_3)_3$
SCH_3	$(CH_2)_3Si(CH_3)_3$
SCH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
SCH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
SCH_3	$(CH_2)_3CH(CH_3)C_2H_5$
SCH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
SCH_3	$(CH_2)_2OC(CH_3)_3$
SCH_3	$(CH_2)_2SC(CH_3)_3$
SCH_3	$(CH_2)_2SCH(CH_3)_2$
SCH_3	$CH_2CH=CHC(CH_3)_3$
SCH_3	$CH_2CH=CHCH(CH_3)_2$
SCH_3	$(CH_2)_2S(=O)C(CH_3)_3$
SCH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
SCH_3	$(CH_2)_2OCH(CH_3)_2$
SCH_3	$(CH_2)_3OC(CH_3)_3$
SCH_3	$(CH_2)_3P(=O)(CH_3)_2$
SCH_3	$CH_2C(=O)CH_2C(CH_3)_3$
SCH_3	$CH(CH_3)(CH_2)_3CH_3$
SCH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
SCH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$

R^1	R^6
C_2H_5	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
C_2H_5	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
C_2H_5	$CH(CH_2CH_2CH(CH_3)_2)_2$
C_2H_5	$CH_2CH_2CH_2N(CH_3)_2$
C_2H_5	$CH_2CH_2N(CH_3)C(CH_3)_3$
C_2H_5	$CH_2CH_2N(CH_3)CH(CH_3)_2$
C_2H_5	$CH_2CH=C(CH_3)_2$
C_2H_5	$(CH_2)_3C(CH_3)_2OCH_3$
C_2H_5	$(CH_2)_3C(CH_3)_2Cl$
C_2H_5	$CH_2CH_2CH=C(CH_3)_2$
SCH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
SCH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
SCH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
SCH_3	$CH_2CH_2CH_2N(CH_3)_2$
SCH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
SCH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
SCH_3	$CH_2CH=C(CH_3)_2$
SCH_3	$(CH_2)_3C(CH_3)_2OCH_3$
SCH_3	$(CH_2)_3C(CH_3)_2Cl$
SCH_3	$CH_2CH_2CH=C(CH_3)_2$

TABLE 3



A	R^2	R^3	R^6
O	CH_3	C_2H_5	$(CH_2)_4CH_3$
O	CH_3	C_2H_5	$(CH_2)_3C(CH_3)_2OC_2H_5$
O	CH_3	C_2H_5	$(CH_2)_5CH_3$
O	CH_3	C_2H_5	$(CH_2)_6CH_3$
O	CH_3	C_2H_5	$(CH_2)_3C(CH_3)_2Br$
O	CH_3	C_2H_5	$(CH_2)_7CH_3$
O	CH_3	C_2H_5	$(CH_2)_3CH(CH_3)_2$
O	CH_3	C_2H_5	$(CH_2)_3C(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_3Si(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
O	CH_3	C_2H_5	$(CH_2)_3CH(CH_3)C_2H_5$
O	CH_3	C_2H_5	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_2OC(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_2SC(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_2SCH(CH_3)_2$
O	CH_3	C_2H_5	$CH_2CH=CHC(CH_3)_3$
O	CH_3	C_2H_5	$CH_2CH=CHCH(CH_3)_2$

A	R^2	R^3	R^6
O	CH_3	C_2H_5	$(CH_2)_2S(=O)C(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_2OCH(CH_3)_2$
O	CH_3	C_2H_5	$(CH_2)_3OC(CH_3)_3$
O	CH_3	C_2H_5	$(CH_2)_3P(=O)(CH_3)_2$
O	CH_3	C_2H_5	$CH_2C(=O)CH_2C(CH_3)_3$
O	CH_3	C_2H_5	$CH(CH_3)(CH_2)_3CH_3$
O	CH_3	C_2H_5	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
O	CH_3	C_2H_5	$CH(CH_3)CH_2CH_2C(CH_3)_3$
O	CH_3	C_2H_5	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
O	CH_3	C_2H_5	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
O	CH_3	C_2H_5	$CH(CH_2CH_2CH(CH_3)_2)_2$
O	CH_3	C_2H_5	$CH_2CH_2CH_2N(CH_3)_2$
O	CH_3	C_2H_5	$CH_2CH_2N(CH_3)C(CH_3)_3$
O	CH_3	C_2H_5	$CH_2CH_2N(CH_3)CH(CH_3)_2$
O	CH_3	C_2H_5	$CH_2CH=C(CH_3)_2$
O	CH_3	C_2H_5	$(CH_2)_3C(CH_3)_2OCH_3$
O	CH_3	C_2H_5	$(CH_2)_3C(CH_3)_2Cl$
O	CH_3	C_2H_5	$CH_2CH_2CH=C(CH_3)_2$
O	C_2H_5	C_2H_5	$(CH_2)_4CH_3$
O	C_2H_5	C_2H_5	$(CH_2)_3C(CH_3)_2OC_2H_5$
O	C_2H_5	C_2H_5	$(CH_2)_5CH_3$
O	C_2H_5	C_2H_5	$(CH_2)_6CH_3$
O	C_2H_5	C_2H_5	$(CH_2)_3C(CH_3)_2Br$
O	C_2H_5	C_2H_5	$(CH_2)_7CH_3$
O	C_2H_5	C_2H_5	$(CH_2)_3CH(CH_3)_2$
O	C_2H_5	C_2H_5	$(CH_2)_3C(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_3Si(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
O	C_2H_5	C_2H_5	$(CH_2)_3CH(CH_3)C_2H_5$
O	C_2H_5	C_2H_5	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_2OC(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_2SC(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_2SCH(CH_3)_2$
O	C_2H_5	C_2H_5	$CH_2CH=CHC(CH_3)_3$
O	C_2H_5	C_2H_5	$CH_2CH=CHCH(CH_3)_2$

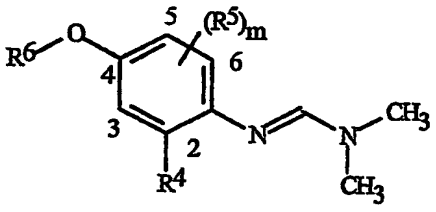
A	R^2	R^3	R^6
O	C_2H_5	C_2H_5	$(CH_2)_2S(=O)C(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_2OCH(CH_3)_2$
O	C_2H_5	C_2H_5	$(CH_2)_3OC(CH_3)_3$
O	C_2H_5	C_2H_5	$(CH_2)_3P(=O)(CH_3)_2$
O	C_2H_5	C_2H_5	$CH_2C(=O)CH_2C(CH_3)_3$
O	C_2H_5	C_2H_5	$CH(CH_3)(CH_2)_3CH_3$
O	C_2H_5	C_2H_5	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
O	C_2H_5	C_2H_5	$CH(CH_3)CH_2CH_2C(CH_3)_3$
O	C_2H_5	C_2H_5	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
O	C_2H_5	C_2H_5	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
O	C_2H_5	C_2H_5	$CH(CH_2CH_2CH(CH_3)_2)_2$
O	C_2H_5	C_2H_5	$CH_2CH_2CH_2N(CH_3)_2$
O	C_2H_5	C_2H_5	$CH_2CH_2N(CH_3)C(CH_3)_3$
O	C_2H_5	C_2H_5	$CH_2CH_2N(CH_3)CH(CH_3)_2$
O	C_2H_5	C_2H_5	$CH_2CH=C(CH_3)_2$
O	C_2H_5	C_2H_5	$(CH_2)_3C(CH_3)_2OCH_3$
O	C_2H_5	C_2H_5	$(CH_2)_3C(CH_3)_2Cl$
O	C_2H_5	C_2H_5	$CH_2CH_2CH=C(CH_3)_2$
NCH_3	CH_3	CH_3	$(CH_2)_4CH_3$
NCH_3	CH_3	CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
NCH_3	CH_3	CH_3	$(CH_2)_5CH_3$
NCH_3	CH_3	CH_3	$(CH_2)_6CH_3$
NCH_3	CH_3	CH_3	$(CH_2)_3C(CH_3)_2Br$
NCH_3	CH_3	CH_3	$(CH_2)_7CH_3$
NCH_3	CH_3	CH_3	$(CH_2)_3CH(CH_3)_2$
NCH_3	CH_3	CH_3	$(CH_2)_3C(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_3Si(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
NCH_3	CH_3	CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
NCH_3	CH_3	CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_2OC(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_2SC(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_2SCH(CH_3)_2$
NCH_3	CH_3	CH_3	$CH_2CH=CHC(CH_3)_3$
NCH_3	CH_3	CH_3	$CH_2CH=CHCH(CH_3)_2$

A	R^2	R^3	R^6
NCH_3	CH_3	CH_3	$(CH_2)_2S(=O)C(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_2OCH(CH_3)_2$
NCH_3	CH_3	CH_3	$(CH_2)_3OC(CH_3)_3$
NCH_3	CH_3	CH_3	$(CH_2)_3P(=O)(CH_3)_2$
NCH_3	CH_3	CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
NCH_3	CH_3	CH_3	$CH(CH_3)(CH_2)_3CH_3$
NCH_3	CH_3	CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
NCH_3	CH_3	CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
NCH_3	CH_3	CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
NCH_3	CH_3	CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
NCH_3	CH_3	CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
NCH_3	CH_3	CH_3	$CH_2CH_2CH_2N(CH_3)_2$
NCH_3	CH_3	CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
NCH_3	CH_3	CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
NCH_3	CH_3	CH_3	$CH_2CH=C(CH_3)_2$
NCH_3	CH_3	CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
NCH_3	CH_3	CH_3	$(CH_2)_3C(CH_3)_2Cl$
NCH_3	CH_3	CH_3	$CH_2CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_4CH_3$
NH	CH_3	CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
NH	CH_3	CH_3	$(CH_2)_5CH_3$
NH	CH_3	CH_3	$(CH_2)_6CH_3$
NH	CH_3	CH_3	$(CH_2)_3C(CH_3)_2Br$
NH	CH_3	CH_3	$(CH_2)_7CH_3$
NH	CH_3	CH_3	$(CH_2)_3CH(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_3C(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_3Si(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
NH	CH_3	CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_2OC(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_2SC(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_2SCH(CH_3)_2$
NH	CH_3	CH_3	$CH_2CH=CHC(CH_3)_3$
NH	CH_3	CH_3	$CH_2CH=CHCH(CH_3)_2$

A	R^2	R^3	R^6
NH	CH_3	CH_3	$(CH_2)_2S(=O)C(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_2OCH(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_3OC(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_3P(=O)(CH_3)_2$
NH	CH_3	CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
NH	CH_3	CH_3	$CH(CH_3)(CH_2)_3CH_3$
NH	CH_3	CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
NH	CH_3	CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
NH	CH_3	CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
NH	CH_3	CH_3	$CH_2CH_2CH_2N(CH_3)_2$
NH	CH_3	CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
NH	CH_3	CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
NH	CH_3	CH_3	$CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
NH	CH_3	CH_3	$(CH_2)_3C(CH_3)_2Cl$
NH	CH_3	CH_3	$CH_2CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_8CH_3$
NH	CH_3	CH_3	$(CH_2)_9CH_3$
NH	CH_3	CH_3	$(CH_2)_{11}CH_3$
NH	CH_3	CH_3	$(CH_2)_4CH(CH_3)_2$
NH	CH_3	CH_3	$C(=O)OCH(C_2H_5)C(CH_3)_3$
NH	CH_3	CH_3	$C(=O)OC(CH_3)_2C(CH_3)_3$
NH	CH_3	CH_3	$CH_2CH_2CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$C(=O)CH_2SC(CH_3)_3$
NH	CH_3	CH_3	$(CH_2)_4Cl$
NH	CH_3	CH_3	$(CH_2)_5Cl$
NH	CH_3	CH_3	$(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$
NH	CH_3	CH_3	(S)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	(R)-$(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_2CH(CH_3)_2$
NH	CH_3	CH_3	$(CH_2)_2C(CH_3)_3$
NH	CH_3	CH_3	$CH_2C(=O)C(CH_3)_3$
NH	CH_3	CH_3	$CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$
NH	CH_3	CH_3	$CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$

A	R^2	R^3	R^6
NH	CH_3	CH_3	$(CH_2)_3CH=CH_2$
NH	CH_3	CH_3	$(CH_2)_4CH=CH_2$
NH	CH_3	CH_3	$CH(C_2H_5)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_3)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_2CH_3)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH_2CH_3$
NH	CH_3	CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)(C_2H_5)$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_2CH_2CH_3)_2$
NH	CH_3	CH_3	$CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$
NH	CH_3	CH_3	$CH(C_2H_5)CH_2CH_2C(=CH_2)CH_3$

TABLE 4



R^4	m	R^5	R^6
CH_3	1	5-Cl	$(CH_2)_4CH_3$
CH_3	1	5-Cl	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	5-Cl	$(CH_2)_5CH_3$
CH_3	1	5-Cl	$(CH_2)_6CH_3$
CH_3	1	5-Cl	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	5-Cl	$(CH_2)_7CH_3$
CH_3	1	5-Cl	$(CH_2)_3CH(CH_3)_2$
CH_3	1	5-Cl	$(CH_2)_3C(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_3Si(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	1	5-Cl	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	5-Cl	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_2OC(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_2SC(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	5-Cl	$CH_2CH=CHC(CH_3)_3$
CH_3	1	5-Cl	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	5-Cl	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	1	5-Cl	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	5-Cl	$(CH_2)_3OC(CH_3)_3$
CH_3	1	5-Cl	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	5-Cl	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	1	5-Cl	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	5-Cl	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-Cl	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	5-Cl	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-Cl	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-Cl	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	5-Cl	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	5-Cl	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	5-Cl	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	5-Cl	$CH_2CH=C(CH_3)_2$
CH_3	1	5-Cl	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	5-Cl	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	5-Cl	$CH_2CH_2CH=C(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_4CH_3$
Cl	1	5-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
Cl	1	5-CH_3	$(CH_2)_5CH_3$
Cl	1	5-CH_3	$(CH_2)_6CH_3$
Cl	1	5-CH_3	$(CH_2)_3C(CH_3)_2Br$
Cl	1	5-CH_3	$(CH_2)_7CH_3$
Cl	1	5-CH_3	$(CH_2)_3CH(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_3C(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_3Si(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
Cl	1	5-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_2OC(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_2SC(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_2SCH(CH_3)_2$
Cl	1	5-CH_3	$CH_2CH=CHC(CH_3)_3$
Cl	1	5-CH_3	$CH_2CH=CHCH(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
Cl	1	5-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_2OCH(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_3OC(CH_3)_3$
Cl	1	5-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
Cl	1	5-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
Cl	1	5-CH_3	$CH(CH_3)(CH_2)_3CH_3$
Cl	1	5-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	5-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
Cl	1	5-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
Cl	1	5-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	5-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
Cl	1	5-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
Cl	1	5-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
Cl	1	5-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
Cl	1	5-CH_3	$CH_2CH=C(CH_3)_2$
Cl	1	5-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
Cl	1	5-CH_3	$(CH_2)_3C(CH_3)_2Cl$
Cl	1	5-CH_3	$CH_2CH_2CH=C(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_4CH_3$
Cl	1	5-Cl	$(CH_2)_3C(CH_3)_2OC_2H_5$
Cl	1	5-Cl	$(CH_2)_5CH_3$
Cl	1	5-Cl	$(CH_2)_6CH_3$
Cl	1	5-Cl	$(CH_2)_3C(CH_3)_2Br$
Cl	1	5-Cl	$(CH_2)_7CH_3$
Cl	1	5-Cl	$(CH_2)_3CH(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_3C(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_3Si(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_3CH(CH_3)C_2H_5$
Cl	1	5-Cl	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_2OC(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_2SC(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_2SCH(CH_3)_2$
Cl	1	5-Cl	$CH_2CH=CHC(CH_3)_3$
Cl	1	5-Cl	$CH_2CH=CHCH(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
Cl	1	5-Cl	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_2OCH(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_3OC(CH_3)_3$
Cl	1	5-Cl	$(CH_2)_3P(=O)(CH_3)_2$
Cl	1	5-Cl	$CH_2C(=O)CH_2C(CH_3)_3$
Cl	1	5-Cl	$CH(CH_3)(CH_2)_3CH_3$
Cl	1	5-Cl	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	5-Cl	$CH(CH_3)CH_2CH_2C(CH_3)_3$
Cl	1	5-Cl	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
Cl	1	5-Cl	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	5-Cl	$CH(CH_2CH_2CH(CH_3)_2)_2$
Cl	1	5-Cl	$CH_2CH_2CH_2N(CH_3)_2$
Cl	1	5-Cl	$CH_2CH_2N(CH_3)C(CH_3)_3$
Cl	1	5-Cl	$CH_2CH_2N(CH_3)CH(CH_3)_2$
Cl	1	5-Cl	$CH_2CH=C(CH_3)_2$
Cl	1	5-Cl	$(CH_2)_3C(CH_3)_2OCH_3$
Cl	1	5-Cl	$(CH_2)_3C(CH_3)_2Cl$
Cl	1	5-Cl	$CH_2CH_2CH=C(CH_3)_2$
CH_3	0	-	$(CH_2)_4CH_3$
CH_3	0	-	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	0	-	$(CH_2)_5CH_3$
CH_3	0	-	$(CH_2)_6CH_3$
CH_3	0	-	$(CH_2)_3C(CH_3)_2Br$
CH_3	0	-	$(CH_2)_7CH_3$
CH_3	0	-	$(CH_2)_3CH(CH_3)_2$
CH_3	0	-	$(CH_2)_3C(CH_3)_3$
CH_3	0	-	$(CH_2)_3Si(CH_3)_3$
CH_3	0	-	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	0	-	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	0	-	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	0	-	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	0	-	$(CH_2)_2OC(CH_3)_3$
CH_3	0	-	$(CH_2)_2SC(CH_3)_3$
CH_3	0	-	$(CH_2)_2SCH(CH_3)_2$
CH_3	0	-	$CH_2CH=CHC(CH_3)_3$
CH_3	0	-	$CH_2CH=CHCH(CH_3)_2$
CH_3	0	-	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	0	-	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	0	-	$(CH_2)_2OCH(CH_3)_2$
CH_3	0	-	$(CH_2)_3OC(CH_3)_3$
CH_3	0	-	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	0	-	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	0	-	$CH(CH_3)(CH_2)_3CH_3$
CH_3	0	-	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	0	-	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	0	-	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	0	-	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	0	-	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	0	-	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	0	-	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	0	-	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	0	-	$CH_2CH=C(CH_3)_2$
CH_3	0	-	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	0	-	$(CH_2)_3C(CH_3)_2Cl$
CH_3	0	-	$CH_2CH_2CH=C(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_4CH_3$
CF_3	1	5-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CF_3	1	5-CH_3	$(CH_2)_5CH_3$
CF_3	1	5-CH_3	$(CH_2)_6CH_3$
CF_3	1	5-CH_3	$(CH_2)_3C(CH_3)_2Br$
CF_3	1	5-CH_3	$(CH_2)_7CH_3$
CF_3	1	5-CH_3	$(CH_2)_3CH(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_3C(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_3Si(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CF_3	1	5-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_2OC(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_2SC(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_2SCH(CH_3)_2$
CF_3	1	5-CH_3	$CH_2CH=CHC(CH_3)_3$
CF_3	1	5-CH_3	$CH_2CH=CHCH(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CF_3	1	5-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_2OCH(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_3OC(CH_3)_3$
CF_3	1	5-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CF_3	1	5-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CF_3	1	5-CH_3	$CH(CH_3)(CH_2)_3CH_3$
CF_3	1	5-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CF_3	1	5-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CF_3	1	5-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CF_3	1	5-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CF_3	1	5-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CF_3	1	5-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CF_3	1	5-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CF_3	1	5-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CF_3	1	5-CH_3	$CH_2CH=C(CH_3)_2$
CF_3	1	5-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CF_3	1	5-CH_3	$(CH_2)_3C(CH_3)_2Cl$
CF_3	1	5-CH_3	$CH_2CH_2CH=C(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_4CH_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_5CH_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_6CH_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(CH_3)_2Br$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_7CH_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3Si(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2OC(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2SC(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2SCH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH_2CH=CHC(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$CH_2CH=CHCH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_2OCH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3OC(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$CH(CH_3)(CH_2)_3CH_3$
CH_3	2	5-CH_3-6-Cl	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	2	5-CH_3-6-Cl	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	2	5-CH_3-6-Cl	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$CH_2CH=C(CH_3)_2$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	2	5-CH_3-6-Cl	$(CH_2)_3C(CH_3)_2Cl$
CH_3	2	5-CH_3-6-Cl	$CH_2CH_2CH=C(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_4CH_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	2	3,5-di-CH_3	$(CH_2)_5CH_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_6CH_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	2	3,5-di-CH_3	$(CH_2)_7CH_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	2	3,5-di-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	2	3,5-di-CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	2	3,5-di-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	2	3,5-di-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	2	3,5-di-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	2	3,5-di-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	2	3,5-di-CH_3	$CH_2CH=C(CH_3)_2$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	2	3,5-di-CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	2	3,5-di-CH_3	$CH_2CH_2CH=C(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_4CH_3$
CH_3	1	3-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	3-CH_3	$(CH_2)_5CH_3$
CH_3	1	3-CH_3	$(CH_2)_6CH_3$
CH_3	1	3-CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	3-CH_3	$(CH_2)_7CH_3$
CH_3	1	3-CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	3-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	3-CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	1	3-CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	1	3-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	1	3-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	3-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	1	3-CH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	3-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	3-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	3-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	3-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	3-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	3-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	3-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	3-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	3-CH_3	$CH_2CH=C(CH_3)_2$
CH_3	1	3-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	3-CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	3-CH_3	$CH_2CH_2CH=C(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_4CH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_5CH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_6CH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_7CH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH=C(CH_3)_2$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	3	3,6-di-Cl-5-CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	3	3,6-di-Cl-5-CH_3	$CH_2CH_2CH=C(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_4CH_3$
F	3	3,5,6-tri-F	$(CH_2)_3C(CH_3)_2OC_2H_5$
F	3	3,5,6-tri-F	$(CH_2)_5CH_3$
F	3	3,5,6-tri-F	$(CH_2)_6CH_3$
F	3	3,5,6-tri-F	$(CH_2)_3C(CH_3)_2Br$
F	3	3,5,6-tri-F	$(CH_2)_7CH_3$
F	3	3,5,6-tri-F	$(CH_2)_3CH(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_3C(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_3Si(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_3CH(CH_3)C_2H_5$
F	3	3,5,6-tri-F	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_2OC(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_2SC(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_2SCH(CH_3)_2$
F	3	3,5,6-tri-F	$CH_2CH=CHC(CH_3)_3$
F	3	3,5,6-tri-F	$CH_2CH=CHCH(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_2S(=O)C(CH_3)_3$

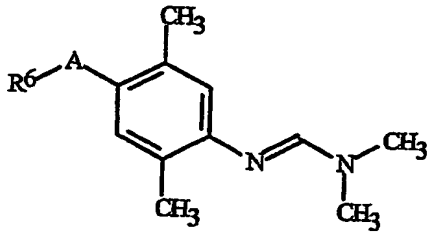
R^4	m	R^5	R^6
F	3	3,5,6-tri-F	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_2OCH(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_3OC(CH_3)_3$
F	3	3,5,6-tri-F	$(CH_2)_3P(=O)(CH_3)_2$
F	3	3,5,6-tri-F	$CH_2C(=O)CH_2C(CH_3)_3$
F	3	3,5,6-tri-F	$CH(CH_3)(CH_2)_3CH_3$
F	3	3,5,6-tri-F	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
F	3	3,5,6-tri-F	$CH(CH_3)CH_2CH_2C(CH_3)_3$
F	3	3,5,6-tri-F	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
F	3	3,5,6-tri-F	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
F	3	3,5,6-tri-F	$CH(CH_2CH_2CH(CH_3)_2)_2$
F	3	3,5,6-tri-F	$CH_2CH_2CH_2N(CH_3)_2$
F	3	3,5,6-tri-F	$CH_2CH_2N(CH_3)C(CH_3)_3$
F	3	3,5,6-tri-F	$CH_2CH_2N(CH_3)CH(CH_3)_2$
F	3	3,5,6-tri-F	$CH_2CH=C(CH_3)_2$
F	3	3,5,6-tri-F	$(CH_2)_3C(CH_3)_2OCH_3$
F	3	3,5,6-tri-F	$(CH_2)_3C(CH_3)_2Cl$
F	3	3,5,6-tri-F	$CH_2CH_2CH=C(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_4CH_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(CH_3)_2OC_2H_5$
Cl	3	3,5,6-tri-Cl	$(CH_2)_5CH_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_6CH_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(CH_3)_2Br$
Cl	3	3,5,6-tri-Cl	$(CH_2)_7CH_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3Si(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3CH(CH_3)C_2H_5$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2OC(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2SC(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2SCH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH_2CH=CHC(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$CH_2CH=CHCH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
Cl	3	3,5,6-tri-Cl	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_2OCH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3OC(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3P(=O)(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH_2C(=O)CH_2C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$CH(CH_3)(CH_2)_3CH_3$
Cl	3	3,5,6-tri-Cl	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH(CH_3)CH_2CH_2C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH(CH_2CH_2CH(CH_3)_2)_2$
Cl	3	3,5,6-tri-Cl	$CH_2CH_2CH_2N(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH_2CH_2N(CH_3)C(CH_3)_3$
Cl	3	3,5,6-tri-Cl	$CH_2CH_2N(CH_3)CH(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$CH_2CH=C(CH_3)_2$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(CH_3)_2OCH_3$
Cl	3	3,5,6-tri-Cl	$(CH_2)_3C(CH_3)_2Cl$
Cl	3	3,5,6-tri-Cl	$CH_2CH_2CH=C(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_4CH_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_5CH_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_6CH_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_7CH_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3Si(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2OC(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2SC(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH=CHC(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2S(=O)C(CH_3)_3$

R^4	m	R^5	R^6
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3OC(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	5-$CH(CH_3)_2$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$CH_2CH=C(CH_3)_2$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	5-$CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_4CH_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_5CH_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_6CH_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_7CH_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3Si(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2OC(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2SC(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH=CHC(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2S(=O)C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$

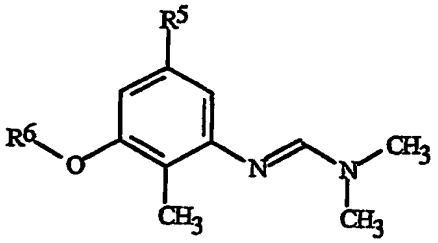
R^4	m	R^5	R^6
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3OC(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	5-$C(CH_3)_3$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$CH_2CH=C(CH_3)_2$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	5-$C(CH_3)_3$	$(CH_2)_3C(CH_3)_2Cl$

TABLE 5



A	R^6
NH	$C(=O)CH_2SC(CH_3)_3$
NH	$C(=O)CH_2S(=O)C(CH_3)_3$
NH	$C(=O)CH_2S(=O)_2C(CH_3)_3$
NH	$C(=O)OCH_2C(CH_3)_3$
NH	$C(=O)NHCH_2C(CH_3)_3$
NH	$C(=O)N(CH_3)CH_2C(CH_3)_3$
NH	$C(=O)OCH_2CH(CH_3)_2$
NH	$C(=O)NHCH_2CH(CH_3)_2$
NH	$C(=O)N(CH_3)CH_2CH(CH_3)_2$
O	$C(CH_3)_2CH_2CH_2CH(CH_3)_2$
O	$C(CH_3)(CH_2CH_2CH_2CH_3)_2$
O	$C(CH_3)(CH_2CH_2CH_3)_2$

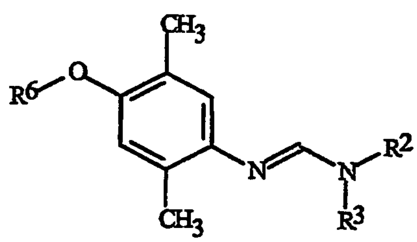
TABLE 6



R^5	R^6
5-CH_3	$(CH_2)_4CH_3$
5-CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
5-CH_3	$(CH_2)_5CH_3$
5-CH_3	$(CH_2)_6CH_3$
5-CH_3	$(CH_2)_3C(CH_3)_2Br$
5-CH_3	$(CH_2)_7CH_3$
5-CH_3	$(CH_2)_3CH(CH_3)_2$
5-CH_3	$(CH_2)_3C(CH_3)_3$
5-CH_3	$(CH_2)_3Si(CH_3)_3$
5-CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
5-CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
5-CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
5-CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
5-CH_3	$(CH_2)_2OC(CH_3)_3$
5-CH_3	$(CH_2)_2SC(CH_3)_3$
5-CH_3	$(CH_2)_2SCH(CH_3)_2$
5-CH_3	$CH_2CH=CHC(CH_3)_3$
5-CH_3	$CH_2CH=CHCH(CH_3)_2$
5-CH_3	$(CH_2)_2S(=O)C(CH_3)_3$
5-CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
5-CH_3	$(CH_2)_2OCH(CH_3)_2$
5-CH_3	$(CH_2)_3OC(CH_3)_3$
5-CH_3	$(CH_2)_3P(=O)(CH_3)_2$
5-CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
5-CH_3	$CH(CH_3)(CH_2)_3CH_3$
5-CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
5-CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
5-CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
5-CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
5-CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$

R^5	R^6
5-CH_3	$CH_2CH_2CH_2N(CH_3)_2$
5-CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
5-CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
5-CH_3	$CH_2CH{=}C(CH_3)_2$
5-CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
5-CH_3	$(CH_2)_3C(CH_3)_2Cl$
5-CH_3	$CH_2CH_2CH{=}C(CH_3)_2$

TABLE 7



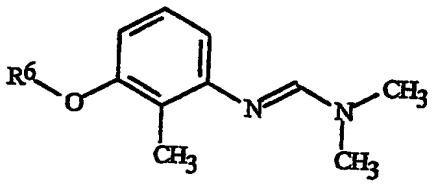
$R^2 + R^3$	R^6
-$(CH_2)_4$-	$(CH_2)_4CH_3$
-$(CH_2)_4$-	$(CH_2)_3C(CH_3)_2OC_2H_5$
-$(CH_2)_4$-	$(CH_2)_5CH_3$
-$(CH_2)_4$-	$(CH_2)_6CH_3$
-$(CH_2)_4$-	$(CH_2)_3C(CH_3)_2Br$
-$(CH_2)_4$-	$(CH_2)_7CH_3$
-$(CH_2)_4$-	$(CH_2)_3CH(CH_3)_2$
-$(CH_2)_4$-	$(CH_2)_3C(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_3Si(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_3C({=}CH_2)CH(CH_3)_2$
-$(CH_2)_4$-	$(CH_2)_3CH(CH_3)C_2H_5$
-$(CH_2)_4$-	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_2OC(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_2SC(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_2SCH(CH_3)_2$
-$(CH_2)_4$-	$CH_2CH{=}CHC(CH_3)_3$
-$(CH_2)_4$-	$CH_2CH{=}CHCH(CH_3)_2$
-$(CH_2)_4$-	$(CH_2)_2S({=}O)C(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
-$(CH_2)_4$-	$(CH_2)_2OCH(CH_3)_2$

$R^2 + R^3$	R^6
$-(CH_2)_4-$	$(CH_2)_3OC(CH_3)_3$
$-(CH_2)_4-$	$(CH_2)_3P(=O)(CH_3)_2$
$-(CH_2)_4-$	$CH_2C(=O)CH_2C(CH_3)_3$
$-(CH_2)_4-$	$CH(CH_3)(CH_2)_3CH_3$
$-(CH_2)_4-$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_4-$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
$-(CH_2)_4-$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_4-$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_4-$	$CH(CH_2CH_2CH(CH_3)_2)_2$
$-(CH_2)_4-$	$CH_2CH_2CH_2N(CH_3)_2$
$-(CH_2)_4-$	$CH_2CH_2N(CH_3)C(CH_3)_3$
$-(CH_2)_4-$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
$-(CH_2)_4-$	$CH_2CH=C(CH_3)_2$
$-(CH_2)_4-$	$(CH_2)_3C(CH_3)_2OCH_3$
$-(CH_2)_4-$	$(CH_2)_3C(CH_3)_2Cl$
$-(CH_2)_4-$	$CH_2CH_2CH=C(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_4CH_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(CH_3)_2OC_2H_5$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_5CH_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_6CH_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(CH_3)_2Br$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_7CH_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3Si(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3CH(CH_3)C_2H_5$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2OC(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2SC(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2SCH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH=CHC(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH=CHCH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2S(=O)C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_2OCH(CH_3)_2$

$R^2 + R^3$	R^6
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3OC(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3P(=O)(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH_2C(=O)CH_2C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$CH(CH_3)(CH_2)_3CH_3$
$-CH_2CH_2OCH_2CH_2-$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH(CH_2CH_2CH(CH_3)_2)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH_2CH_2N(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH_2N(CH_3)C(CH_3)_3$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH=C(CH_3)_2$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(CH_3)_2OCH_3$
$-CH_2CH_2OCH_2CH_2-$	$(CH_2)_3C(CH_3)_2Cl$
$-CH_2CH_2OCH_2CH_2-$	$CH_2CH_2CH=C(CH_3)_2$
$-(CH_2)_5-$	$(CH_2)_4CH_3$
$-(CH_2)_5-$	$(CH_2)_3C(CH_3)_2OC_2H_5$
$-(CH_2)_5-$	$(CH_2)_5CH_3$
$-(CH_2)_5-$	$(CH_2)_6CH_3$
$-(CH_2)_5-$	$(CH_2)_3C(CH_3)_2Br$
$-(CH_2)_5-$	$(CH_2)_7CH_3$
$-(CH_2)_5-$	$(CH_2)_3CH(CH_3)_2$
$-(CH_2)_5-$	$(CH_2)_3C(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_3Si(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
$-(CH_2)_5-$	$(CH_2)_3CH(CH_3)C_2H_5$
$-(CH_2)_5-$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_2OC(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_2SC(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_2SCH(CH_3)_2$
$-(CH_2)_5-$	$CH_2CH=CHC(CH_3)_3$
$-(CH_2)_5-$	$CH_2CH=CHCH(CH_3)_2$
$-(CH_2)_5-$	$(CH_2)_2S(=O)C(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_2OCH(CH_3)_2$

$R^2 + R^3$	R^6
$-(CH_2)_5-$	$(CH_2)_3OC(CH_3)_3$
$-(CH_2)_5-$	$(CH_2)_3P(=O)(CH_3)_2$
$-(CH_2)_5-$	$CH_2C(=O)CH_2C(CH_3)_3$
$-(CH_2)_5-$	$CH(CH_3)(CH_2)_3CH_3$
$-(CH_2)_5-$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_5-$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
$-(CH_2)_5-$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_5-$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
$-(CH_2)_5-$	$CH(CH_2CH_2CH(CH_3)_2)_2$
$-(CH_2)_5-$	$CH_2CH_2CH_2N(CH_3)_2$
$-(CH_2)_5-$	$CH_2CH_2N(CH_3)C(CH_3)_3$
$-(CH_2)_5-$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
$-(CH_2)_5-$	$CH_2CH=C(CH_3)_2$
$-(CH_2)_5-$	$(CH_2)_3C(CH_3)_2OCH_3$
$-(CH_2)_5-$	$(CH_2)_3C(CH_3)_2Cl$
$-(CH_2)_5-$	$CH_2CH_2CH=C(CH_3)_2$

TABLE 8



R^6	R^6
$(CH_2)_4CH_3$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
$(CH_2)_3C(CH_3)_2OC_2H_5$	$(CH_2)_2OCH(CH_3)_2$
$(CH_2)_5CH_3$	$(CH_2)_3OC(CH_3)_3$
$(CH_2)_6CH_3$	$(CH_2)_3P(=O)(CH_3)_2$
$(CH_2)_3C(CH_3)_2Br$	$CH_2C(=O)CH_2C(CH_3)_3$
$(CH_2)_7CH_3$	$CH(CH_3)(CH_2)_3CH_3$
$(CH_2)_3CH(CH_3)_2$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
$(CH_2)_3C(CH_3)_3$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
$(CH_2)_3Si(CH_3)_3$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
$(CH_2)_3C(=CH_2)CH(CH_3)_2$	$CH(CH_2CH_2CH(CH_3)_2)_2$
$(CH_2)_3CH(CH_3)C_2H_5$	$CH_2CH_2CH_2N(CH_3)_2$
$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$	$CH_2CH_2N(CH_3)C(CH_3)_3$

R^6	R^6
$(CH_2)_2OC(CH_3)_3$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
$(CH_2)_2SC(CH_3)_3$	$CH_2CH=C(CH_3)_2$
$(CH_2)_2SCH(CH_3)_2$	$(CH_2)_3C(CH_3)_2OCH_3$
$CH_2CH=CHC(CH_3)_3$	$(CH_2)_3C(CH_3)_2Cl$
$CH_2CH=CHCH(CH_3)_2$	$CH_2CH_2CH=C(CH_3)_2$
$(CH_2)_2S(=O)C(CH_3)_3$	

Formulation/Utility

Compounds of this invention will generally be used as a formulation or composition with an agriculturally suitable carrier comprising at least one of a liquid diluent, a solid diluent or a surfactant. Accordingly, compositions are provided which comprise, in addition to a fungicidally effective amount of the active compound(s), at least one additional component selected from the group consisting surfactants, solid diluents and liquid diluents. The formulation or composition ingredients are selected to be consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Useful formulations include liquids such as solutions (including emulsifiable concentrates), suspensions, emulsions (including microemulsions and/or suspoemulsions) and the like which optionally can be thickened into gels. Useful formulations further include solids such as dusts, powders, granules, pellets, tablets, films, and the like which can be water-dispersible ("wettable") or water-soluble. Active ingredient can be (micro)encapsulated and further formed into a suspension or solid formulation; alternatively the entire formulation of active ingredient can be encapsulated (or "overcoated"). Encapsulation can control or delay release of the active ingredient. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred liters per hectare. High-strength compositions are primarily used as intermediates for further formulation.

The formulations will typically contain effective amounts of active ingredient, diluent and/or surfactant within the following approximate ranges which add up to 100 percent by weight.

	Weight Percent		
	Active Ingredient	Diluent	Surfactant
Water-Dispersible and Water-soluble Granules, Tablets and Powders.	5–90	0–94	1–15
Suspensions, Emulsions, Solutions (including Emulsifiable Concentrates)	5–50	40–95	0–15
Dusts	1–25	70–99	0–5
Granules and Pellets	0.01–99	5–99.99	0–15
High Strength Compositions	90–99	0–10	0–2

Typical solid diluents are described in Watkins, et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950. *McCutcheon's Detergents and Emulsifiers Annual*, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can contain minor amounts of additives to reduce foam, caking, corrosion, microbiological growth and the like, or thickeners to increase viscosity.

Surfactants include, for example, polyethoxylated alcohols, polyethoxylated alkylphenols, polyethoxylated sorbitan fatty acid esters, dialkyl sulfosuccinates, alkyl sulfates, alkylbenzene sulfonates, organosilicones, *N,N*-dialkyltaurates, lignin sulfonates, naphthalene sulfonate formaldehyde condensates, polycarboxylates, and polyoxyethylene/polyoxypropylene block copolymers. Solid diluents include, for example, clays such as bentonite, montmorillonite, attapulgite and kaolin, starch, sugar, silica, talc, diatomaceous earth, urea, calcium carbonate, sodium carbonate and bicarbonate, and sodium sulfate. Liquid diluents include, for example, water, *N,N*-dimethylformamide, dimethyl sulfoxide, *N*-alkylpyrrolidone, ethylene glycol, polypropylene glycol, paraffins, alkylbenzenes, alkylnaphthalenes, oils of olive, castor, linseed, tung, sesame, corn, peanut, cotton-seed, soybean, rape-seed and coconut, fatty acid esters, ketones such as cyclohexanone, 2-heptanone, isophorone and 4-hydroxy-4-methyl-2-pentanone, and alcohols such as methanol, cyclohexanol, decanol and tetrahydrofurfuryl alcohol.

Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. Dusts and powders can be prepared by blending and, usually, grinding as in a hammer mill or fluid-energy mill. Suspensions are usually prepared by wet-milling; see, for example, U.S. 3,060,084. Granules and pellets can be prepared by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147-48, *Perry's Chemical*

Engineer's Handbook, 4th Ed., McGraw-Hill, New York, 1963, pages 8-57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can be prepared as taught in U.S. 4,144,050, U.S. 3,920,442 and DE 3,246,493. Tablets can be prepared as taught in U.S. 5,180,587, U.S. 5,232,701 and U.S. 5,208,030. Films can be prepared as taught in GB 2,095,558 and U.S. 3,299,566.

For further information regarding the art of formulation, see T. S. Woods, "The Formulator's Toolbox – Product Forms for Modern Agriculture" in *Pesticide Chemistry and Bioscience, The Food–Environment Challenge*, T. Brooks and T. R. Roberts, Eds., Proceedings of the 9th International Congress on Pesticide Chemistry, The Royal Society of Chemistry, Cambridge, 1999, pp. 120–133. See also U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10–41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138–140, 162–164, 166, 167 and 169–182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1–4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81–96; and Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989.

In the following Examples, all percentages are by weight and all formulations are prepared in conventional ways. Compound numbers refer to compounds in Index Table A.

Example A

Wettable Powder

Compound 13	65.0%
dodecylphenol polyethylene glycol ether	2.0%
sodium ligninsulfonate	4.0%
sodium silicoaluminate	6.0%
montmorillonite (calcined)	23.0%.

Example B

Granule

Compound 13	10.0%
attapulgite granules (low volatile matter, 0.71/0.30 mm; U.S.S. No. 25–50 sieves)	90.0%.

Example C

Extruded Pellet

Compound 13	25.0%
anhydrous sodium sulfate	10.0%
crude calcium ligninsulfonate	5.0%
sodium alkylnaphthalenesulfonate	1.0%
calcium/magnesium bentonite	59.0%.

Example D

Emulsifiable Concentrate

Compound 13	20.0%
blend of oil soluble sulfonates and polyoxyethylene ethers	10.0%
isophorone	70.0%.

The compounds of this invention are useful as plant disease control agents. The present invention therefore further comprises a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof to be protected, or to the plant seed or seedling to be protected, an effective amount of a compound of the invention or a fungicidal composition containing said compound. The compounds and compositions of this invention provide control of diseases caused by a broad spectrum of fungal plant pathogens in the Basidiomycete, Ascomycete, Oomycete and Deuteromycete classes. They are effective in controlling a broad spectrum of plant diseases, particularly foliar pathogens of ornamental, vegetable, field, cereal, and fruit crops. These pathogens include *Plasmopara viticola, Phytophthora infestans, Peronospora tabacina, Pseudoperonospora cubensis, Pythium aphanidermatum, Alternaria brassicae, Septoria nodorum, Septoria tritici, Cercosporidium personatum, Cercospora arachidicola, Pseudocercosporella herpotrichoides, Cercospora beticola, Botrytis cinerea, Monilinia fructicola, Pyricularia oryzae, Podosphaera leucotricha, Venturia inaequalis, Erysiphe graminis, Uncinula necatur, Puccinia recondita, Puccinia graminis, Hemileia vastatrix, Puccinia striiformis, Puccinia arachidis, Rhizoctonia solani, Sphaerotheca fuliginea, Fusarium oxysporum, Verticillium dahliae, Pythium aphanidermatum, Phytophthora megasperma, Sclerotinia sclerotiorum, Sclerotium rolfsii, Erysiphe polygoni, Pyrenophora teres, Gaeumannomyces graminis, Rynchosporium secalis, Fusarium roseum, Bremia lactucae* and other generea and species closely related to these pathogens.

Compounds of this invention can also be mixed with one or more other insecticides, fungicides, nematocides, bactericides, acaricides, growth regulators, chemosterilants, semiochemicals, repellents, attractants, pheromones, feeding stimulants or other biologically active compounds to form a multi-component pesticide giving an even broader spectrum of agricultural protection. Examples of such agricultural protectants with which compounds of this invention can be formulated are: insecticides such as abamectin, acephate, azinphos-methyl, bifenthrin, buprofezin, carbofuran, chlorfenapyr, chlorpyrifos, chlorpyrifos-methyl, cyfluthrin, beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, deltamethrin, diafenthiuron, diazinon, diflubenzuron, dimethoate, esfenvalerate, fenoxycarb, fenpropathrin, fenvalerate, fipronil, flucythrinate, tau-fluvalinate, fonophos, imidacloprid, indoxacarb, isofenphos, malathion, metaldehyde, methamidophos, methidathion, methomyl, methoprene, methoxychlor, monocrotophos, oxamyl, parathion, parathion-methyl,

permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, rotenone, sulprofos, tebufenozide, tefluthrin, terbufos, tetrachlorvinphos, thiodicarb, tralomethrin, trichlorfon and triflumuron; fungicides such as acibenzolar, azoxystrobin, binomial, blasticidin-S, Bordeaux mixture (Tribasic copper sulfate), bromuconazole, buthiobate, carpropamid (KTU 3616), captafol, captan, carbendazim, chloroneb, chlorothalonil, clotrimazole, copper oxychloride, copper salts, cymoxanil, cyproconazole, cyprodinil (CGA 219417),(*S*)-3,5-dichloro-*N*-(3-chloro-1-ethyl-1-methyl- 2-oxopropyl)-4-methylbenzamide (RH 7281), diclocymet (S-2900), diclomezine, dicloran, difenoconazole,(*S*)-3,5-dihydro-5-methyl-2-(methylthio)-5-phenyl- 3-(phenylamino)-4*H*-imidazol-4-one (RP 407213), dimethomorph, dimoxystrobin (SSF-126), diniconazole, diniconazole-M, dodine, econazole, edifenphos, epoxiconazole (BAS 480F), famoxadone, fenarimol, fenbuconazole, fencaramid (SZX0722), fenpiclonil, fenpropidin, fenpropimorph, fentin acetate, fentin hydroxide, fluazinam, fludioxonil, flumetover (RPA 403397), fluquinconazole, flusilazole, flutolanil, flutriafol, folpet, fosetyl-aluminum, furalaxyl, furametapyr (S-82658), hexaconazole, imazalil, 6-iodo-3-propyl-2-propyloxy-4(3*H*)-quinazolinone, ipconazole, iprobenfos, iprodione, isoconazole, isoprothiolane, kasugamycin, kresoxim-methyl, mancozeb, maneb, mefenoxam, mepronil, metalaxyl, metconazole, metominostrobin/fenominostrobin (SSF-126), miconazole, myclobutanil, neo-asozin (ferric methanearsonate), nuarimol, oxadixyl, penconazole, pencycuron, picoxystrobin, probenazole, prochloraz, propamocarb, propiconazole, pyraclostrobin, pyrifenox, pyrimethanil, prochloraz, pyrifenox, pyroquilon, quinoxyfen, spiroxamine, sulfur, tebuconazole, tetraconazole, thiabendazole, thifluzamide, thiophanate-methyl, thiram, triadimefon, triadimenol, triarimol, tricyclazole, triforine, triticonazole, uniconazole, validamycin and vinclozolin; nematocides such as aldoxycarb and fenamiphos; bactericides such as streptomycin; acaricides such as amitraz, chinomethionat, chlorobenzilate, cyhexatin, dicofol, dienochlor, etoxazole, fenazaquin, fenbutatin oxide, fenpropathrin, fenpyroximate, hexythiazox, propargite, pyridaben and tebufenpyrad; and biological agents such as *Bacillus thuringiensis*, *Bacillus thuringiensis* delta endotoxin, baculovirus, and entomopathogenic bacteria, virus and fungi. The weight ratios of these various mixing partners to compounds of this invention typically are between 100:1 and 1:100, preferably between 30:1 and 1:30, more preferably between 10:1 and 1:10, and most preferably between 4:1 and 1:4.

Compounds such as Compound 1 of this invention are considered to inhibit C24 transmethylase in the ergosterol biosynthesis pathway. In certain instances, combinations with other fungicides having a similar spectrum of control but a different mode of action will be particularly advantageous for resistance management (especially if the other fungicide also has a similar spectrum of control). Examples of other fungicides having different mode of actions include compounds acting at the bc_1 complex of the fungal mitochondrial respiratory electron transfer site, compounds acting at the demethylase enzyme of the sterol

biosynthesis pathway, morpholine and piperidine compounds that act on the sterol biosynthesis pathway and pyrimidinone fungicides.

The bc_1 Complex Fungicides

Strobilurin fungicides such as azoxystrobin, kresoxim-methyl, metominostrobin/fenominostrobin (SSF-126), picoxystrobin, pyraclostrobin and trifloxystrobin are known to have a fungicidal mode of action which inhibits the bc_1 complex in the mitochondrial respiration chain (*Angew. Chem. Int. Ed.*, **1999**, *38*, 1328-1349). Methyl (*E*)-2-[[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy]-α-(methoxyimino)benzeneacetate (also known as azoxystrobin) is described as a bc_1 complex inhibitor in *Biochemical Society Transactions* **1993**, *22*, 68S. Methyl (*E*)-α-(methoxyimino)-2-[(2-methylphenoxy)methyl]benzeneacetate (also known as kresoxim-methyl) is described as a bc_1 complex inhibitor in *Biochemical Society Transactions* **1993**, *22*, 64S. (*E*)-2-[(2,5-Dimethylphenoxy)methyl]-α-(methoxyimino)-*N*-methylbenzeneacetamide is described as a bc_1 complex inhibitor in *Biochemistry and Cell Biology* **1995**, *85*(3), 306-311. Other compounds that inhibit the bc_1 complex in the mitochondrial respiration chain include famoxadone and fenamidone.

The bc_1 complex is sometimes referred to by other names in the biochemical literature, including complex III of the electron transfer chain, and ubihydroquinone:cytochrome c oxidoreductase. It is uniquely identified by the Enzyme Commission number EC1.10.2.2. The bc_1 complex is described in, for example, *J. Biol. Chem.* **1989**, *264*, 14543-38; *Methods Enzymol.* **1986**, *126*, 253-71; and references cited therein.

The Sterol Biosynthesis Inhibitor Fungicides

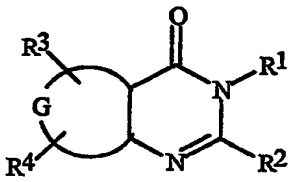
The class of sterol biosynthesis inhibitors includes DMI and non-DMI compounds, that control fungi by inhibiting enzymes in the sterol biosynthesis pathway. DMI fungicides have a common site of action within the fungal sterol biosynthesis pathway; that is, an inhibition of demethylation at position 14 of lanosterol or 24-methylene dihydrolanosterol, which are precursors to sterols in fungi. Compounds acting at this site are often referred to as demethylase inhibitors, DMI fungicides, or DMIs. The demethylase enzyme is sometimes referred to by other names in the biochemical literature, including cytochrome P-450 (14DM). The demethylase enzyme is described in, for example, *J. Biol. Chem.* **1992**, *267*, 13175-79 and references cited therein. DMI fungicides fall into several classes: azoles (including triazoles and imidazoles), pyrimidines, piperazines and pyridines. The triazoles includes bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, ipconazole, metconazole, penconazole, propiconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole and uniconazole. The imidazoles include clotrimazole, econazole, imazalil, isoconazole, miconazole and prochloraz. The pyrimidines include fenarimol, nuarimol and triarimol. The piperazines include triforine. The pyridines include buthiobate

and pyrifenox. Biochemical investigations have shown that all of the above mentioned fungicides are DMI fungicides as described by K. H. Kuck, et al. in *Modern Selective Fungicides - Properties, Applications and Mechanisms of Action,* Lyr, H., Ed.; Gustav Fischer Verlag: New York, **1995**, 205-258.

The DMI fungicides have been grouped together to distinguish them from other sterol biosynthesis inhibitors, such as the morpholine and piperidine fungicides. The morpholines and piperidines are also sterol biosynthesis inhibitors but have been shown to inhibit other steps in the sterol biosynthesis pathway. The morpholines include aldimorph, dodemorph, fenpropimorph, tridemorph and trimorphamide. The piperidines include fenpropidin. Biochemical investigations have shown that all of the above mentioned morpholine and piperidine fungicides are sterol biosynthesis inhibitor fungicides as described by K. H. Kuck, et al. in *Modern Selective Fungicides - Properties, Applications and Mechanisms of Action,* Lyr, H., Ed.; Gustav Fischer Verlag: New York, **1995**, 185-204.

Pyrimidinone Fungicides

Pyrimidinone fungicides include compounds of Formula II



II

wherein

G is a fused phenyl, thiophene or pyridine ring;

R^1 is C_1-C_6 alkyl;

R^2 is C_1-C_6 alkyl or C_1-C_6 alkoxy;

R^3 is halogen; and

R^4 is hydrogen or halogen.

Pyrimidinone fungicides are described in International Patent Application WO94/26722, U.S. Patent No. 6,066,638, U.S. Patent No. 6,245,770, U.S. Patent No. 6,262,058 and U.S. Patent No. 6,277,858.

Of note are pyrimidinone fungicides selected from the group:

6-bromo-3-propyl-2-propyloxy-4(3*H*)-quinazolinone,

6,8-diiodo-3-propyl-2-propyloxy-4(3*H*)-quinazolinone,

6-iodo-3-propyl-2-propyloxy-4(3*H*)-quinazolinone,

6-chloro-2-propoxy-3-propylthieno[2,3-*d*]pyrimidin-4(3*H*)-one,

6-bromo-2-propoxy-3-propylthieno[2,3-*d*]pyrimidin-4(3*H*)-one,

7-bromo-2-propoxy-3-propylthieno[3,2-*d*]pyrimidin-4(3*H*)-one,

6-bromo-2-propoxy-3-propylpyrido[2,3-*d*]pyrimidin-4(3*H*)-one,

6,7-dibromo-2-propoxy-3-propylthieno[3,2-*d*]pyrimidin-4(3*H*)-one, and 3-(cyclopropylmethyl)-6-iodo-2-(propylthio)pyrido[2,3-*d*]pyrimidin-4(3*H*)-one.

Of note are combinations of compounds of Formula I (e.g. Compound 13) with azoxystrobin, kesoxim-methyl, trifloxystrobin, pyraclostrobin, picoxystrobin, dimoxystrobin (SSF-129), metominostrobin/ fenominostrobin (SSF-126), carbendazim, chlorothalonil, quinoxyfen, metrafenone, cyflufenamid, fenpropidine, fenpropimorph, bromuconazole, cyproconazole, difenoconazole, epoxiconazole, fenbuconazole, flusilazole, hexaconazole, ipconazole, metconazole, penconazole, propiconazole, tebuconazole, triticonazole, prochloraz, nicobifen.

Preferred for better control of plant diseases caused by fungal plant pathogens (e.g., lower use rate or broader spectrum of plant pathogens controlled) or resistance management are mixtures of a compound of this invention with a fungicide selected from the group: azoxystrobin, kesoxim-methyl, trifloxystrobin, pyraclostrobin, picoxystrobin, dimoxystrobin (SSF-129), metominostrobin/ fenominostrobin (SSF-126), quinoxyfen, metrafenone, cyflufenamid, fenpropidine, fenpropimorph, cyproconazole, epoxiconazole, flusilazole, metconazole, propiconazole, tebuconazole, triticonazole.

Specifically preferred mixtures (compound numbers refer to compounds in Index Tables A) are selected from the group: combinations of Compound 11, Compounds 13, Compound 17 or Compound 27 with azoxystrobin, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with kesoxim-methyl, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with trifloxystrobin, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with pyraclostrobin, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with picoxystrobin, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with dimoxystrobin (SSF-129), combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with metominostrobin/ fenominostrobin (SSF-126), combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with quinoxyfen, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with metrafenone, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with cyflufenamid, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with fenpropidine, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with fenpropimorph, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with cyproconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with epoxiconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with flusilazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with metconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with propiconazole, combinations of Compound 11, Compound 13,

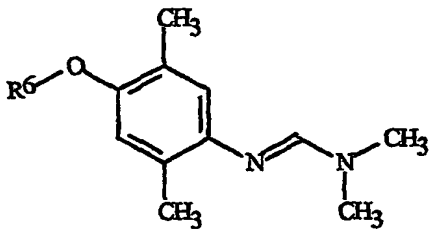
Compound 17 or Compound 27 with tebuconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with triticonazole.

Plant disease control is ordinarily accomplished by applying an effective amount of a compound of this invention either pre- or post-infection, to the portion of the plant to be protected such as the roots, stems, foliage, fruit, seeds, tubers or bulbs, or to the media (soil or sand) in which the plants to be protected are growing. The compounds can also be applied to the seed to protect the seed and seedling.

Rates of application for these compounds can be influenced by many factors of the environment and should be determined under actual use conditions. Foliage can normally be protected when treated at a rate of from less than 1 g/ha to 5,000 g/ha of active ingredient. Seed and seedlings can normally be protected when seed is treated at a rate of from 0.1 to 10 g per kilogram of seed.

The following TESTS demonstrate the control efficacy of compounds of this invention on specific pathogens. The pathogen control protection afforded by the compounds is not limited, however, to these species. See Index Tables A for compound descriptions. The following abbreviations are used in the Index Tables which follow: The abbreviation "Ex." stands for "Example" and is followed by a number indicating in which example the compound is prepared.

INDEX TABLE A



Compound Number	R^6	m.p. (°C.)
1 (Ex. 1)	$CH_2CH=C(CH_3)_2$	*
2	$CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$	*
3	$CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$	*
4	$CH_2C(=O)C(CH_3)_3$	*
5	$(CH_2)_4CH=CH_2$	*
6	$(CH_2)_3CH=CH_2$	*
7	$(CH_2)_4C(OCH_3)_2$	*
8	$(CH_2)_2CH(CH_3)_2$	*
9	$(CH_2)_3C(=CH_2)CH(CH_3)_2$	*
10	$(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$	*
11	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$	*

12	$(CH_2)_2C(CH_3)_3$	*
13 (Ex. 2)	$(CH_2)_3CH(CH_3)_2$	*
14	(*S*)-$(CH_2)_2CH(CH_3)CH_2CH_2CH{=}C(CH_3)_2$	*
15	(*R*)-$(CH_2)_2CH(CH_3)CH_2CH_2CH{=}C(CH_3)_2$	*
16	$(CH_2)_3CH_2Cl$	*
17	$(CH_2)_4CH_2Cl$	*
18	$CH(CH_3)(CH_2)_3CH_3$	*
19	$(CH_2)_4CH_3$	*
20	$(CH_2)_5CH_3$	*
21	$(CH_2)_6CH_3$	*
22	$(CH_2)_7CH_3$	*
23	$(CH_2)_8CH_3$	*
24	$(CH_2)_9CH_3$	*
25	$(CH_2)_{11}CH_3$	53-54*
26 (Ex. 3)	$(CH_2)_3Si(CH_3)_3$	*
27	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$	*
28 (Ex. 4)	$CH(CH_2CH_2CH_2CH_3)_2$	*
29	$CH(CH_2CH_2CH_3)CH_2CH_2CH_2CH_3$	*
30	$CH(CH_2CH_2CH_2CH_2CH_3)_2$	*
31	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$	*
32	$CH(CH_3)CH_2CH_2CH(CH_3)_2$	*
33	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$	*
34	$CH(C_2H_5)_2$	*
35	$CH(CH_2CH_2CH(CH_3)_2)_2$	*
36	$CH(CH_2CH_2CH_3)_2$	*
37	$CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$	*

*See Index Table B for ^{1}H NMR data.

INDEX TABLE B

Cmpd No.	^{1}H NMR Data ($CDCl_3$ solution unless indicated otherwise)[a]
1	δ 1.72 (s,3H), 1.78 (s,3H), 2.17 (s,3H), 2.24 (s,3H), 2.99 (s,6H), 4.46 (d,2H), 5.5 (t,1H), 6.55 (s,1H), 6.66 (s,1H), 7.38 (s,1H).
2	δ 1.6-1.8 (m,9H), 1.9-2.5 (m,10H), 2.98(s, 6H), 4.46(d, 2H), 5.1 (m,1H), 5.5 (m,1H), 6.54 (s,1H), 6.66 (s,1H), 7.38 (s,1H).
3	δ 1.6-2.4 (m,26H), 2.99 (s,6H), 4.5(d, 2H), 5-5.2 (m,2H), 5.5 (m,1H), 6.54 (s,1H), 6.66 (s,1H), 7.38 (s,1H).

Cmpd No.	^{1}H NMR Data ($CDCl_3$ solution unless indicated otherwise)[a]
4	δ 1.25 (s, 9H), 2.21(s, 3H), 2.23 (s,3H), 2.99 (s,6H), 4.79 (s,2H), 6.50 (s,1H), 6.55 (s,1H), 7.37 (s,1H).
5	δ 1.5-2.3 (m, 12H), 2.98(s, 6H), 3.92 (t,2H), 4.95-5.1 (m,2H), 5.7-5.9 (m,1H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
6	δ 1.8-1.92 (m, 2H), 2.17-2.3 (m, 8H), 2.98 (s,6H), 3.92 (t,2H), 4.97-5.13 (m,2H), 5.8-5.95 (m,1H), 5.55 (s,1H), 6.64 (s,1H), 7.37 (s,1H).
7	δ 1.6-2.04 (m,6H), 2.17 (s,3H), 2.22 (s,3H), 2.99 (s,6H), 3.26 (s,9H), 3.97 (t,2H), 6.54 (s,1H), 6.64 (s,1H), 7.38 (s,1H).
8	δ 0.96 (d,6H), 1.67 (q,2H), 1.87 (m,1H), 2.15 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.93 (t, 2H), 6.54 (s,1H), 6.64 (s,1H), 7.37 (s,1H).
9	δ 1.04 (d,6H), 1.8-2.35 (m,11H), 2.98 (s,6H), 3.93 (t,2H), 4.72 (d,1H), 4.98 (d,1H), 6.55 (s,1H), 6.64 (s,1H), 7.38 (s,1H).
10	δ 0.87 (d,6H), 0.94 (d,3H), 1.1-1.9 (m,10H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.93 (m,2H), 6.54 (s,1H), 6.63 (s,1H), 7.38 (s,1H).
11	δ 0.91 (s,9H), 0.98 (d,3H), 1.05-1.35 (m,2H), 1.5-1.9 (m,3H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.92 (t,3H), 6.54 (s,1H), 6.62 (s,1H), 7.38 (s,1H).
12	δ 0.99 (s,9H), 1.72 (t,2H), 2.15 (s,3H), 2.24 (s,3H), 2.98 (s,6H), 3.96 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.38 (s,1H).
13	δ 0.91 (d,6H), 1.28-1.82 (m,5H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.89 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
14	δ 0.95 (d,3H), 1.18-2.1 (m,13H), 2.15 (s,3H), 2.23 (s,3H), 2.97 (s,6H), 3.93 (m,2H), 5.1 (t,1H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
15	δ 0.95 (d,3H), 1.18-2.1 (m,13H), 2.15 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.94 (m,2H), 5.1 (t,1H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
16	δ 1.9-2.1 (m,4H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.63 (t,2H), 3.95 (t,2H), 6.55 (s,1H), 6.62 (s,1H), 7.37 (s,1H).
17	δ 1.6-2 (m,6H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.57 (t,2H), 3.92 (t,2H), 6.54 (s,1H), 6.62 (s,1H), 7.37 (s,1H).
18	δ 0.91 (m,3H), 1.2-1.8 (m,9H), 2.15 (s,3H), 2.22 (s,3H), 2.98 (s,6H), 4.21 (m,1H), 6.53 (s,1H), 6.64 (s,1H), 7.39 (s,1H).
19	δ 0.93 (t,3H), 1.3-1.55 (m,4H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
20	δ 0.9 (t,3H), 1.3-1.56 (m,6H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.55 (s,1H), 6.63 (s,1H), 7.38 (s,1H).
21	δ 0.89 (t,3H), 1.2-1.6 (m,8H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t, 2H), 6.54 (s,1H), 6.64 (s,1H), 7.37 (s,1H).

Cmpd No.	^{1}H NMR Data ($CDCl_3$ solution unless indicated otherwise)[a]
22	δ 0.89 (t,3H), 1.2-1.56 (m,10H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.38 (s,1H).
23	δ 0.88 (t,3H), 1.2-1.56 (m,12H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
24	δ 0.88 (t,3H), 1.2-1.56 (m,14H), 1.7-1.82 (m,2H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
25	δ 0.88 (t,3H), 1.2-1.82 (m,20H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.9 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).
26	δ 0.02 (t,9H), 0.6 (m,2H), 1.7-1.82 (m,2H), 2.17 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.87 (t,2H), 6.54 (s,1H), 6.62 (s,1H), 7.38 (s,1H).
27	δ 0.05 (s,6H), 0.9 (s,9H), 1.97 (m,2H), 2.15 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.82 (t,2H), 4.0 (t,2H), 6.54 (s,1H), 6.64 (s,1H), 7.37 (s,1H).
28	δ 0.9 (t, 6 H), 1.2-1.4 (m, 8 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H)
29	δ 0.9 (t, 6 H), 1.2-1.4 (m, 6 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
30	δ 0.9 (m, 6 H), 1.2-1.4 (m, 12 H), 1.5-1.7 (m, 4H), 2.1 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.45 (s, 1H), 6.6 (s, 1H), 7.35 (s, 1H).
31	δ 0.8 (d, 6 H), 0.9(t, 3H), 1.2-1.4 (m, 2 H), 1.5-1.7 (m, 4H), 2.1 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 3.95-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
32	δ 0.8 (d, 6 H), 1.2(d, 3H), 1.4-1.6 (m, 2 H), 1.6-1.75 (m, 2H), 2.15 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 4.10-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
33	δ 0.8 (d, 6 H), 0.9(t, 3H), 1.2-1.4 (m, 6 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
34	δ 0.9 (t, 6 H), 1.55-1.75 (m, 4 H), 2.1 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 3.95-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
35	δ 0.85 (d, 6 H), 0.95(d, 6H), 1.2-1.4 (m, 4 H), 1.5-1.8 (m, 6H), 2.1 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 3.8-3.95 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
36	δ 0.8-0.9 (t, 6 H), 1.3-1.5 (m, 4 H), 1.5-1.65 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
37	δ 0.8-0.9 (q, 6 H), 1.2-1.4 (m, 14 H), 1.5-1.7 (m, 4H), 2.1(s, 3H), 2.2(s, 3H), 2.95 (s, 6H), 4.05-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).

[a] ^{1}H NMR data are in ppm downfield from tetramethylsilane. Couplings are designated by (s)-singlet, (d)-doublet, (t)-triplet, (q)-quartet, (m)-multiplet, (dd)-doublet of doublets, (dt)-doublet of triplets, (br s)-broad singlet.

BIOLOGICAL EXAMPLES OF THE INVENTION

General protocol for preparing test suspensions: Test compounds are first dissolved in acetone in an amount equal to 3% of the final volume and then suspended at the desired concentration (in ppm) in acetone and purified water (50/50 mix) containing 250 ppm of the surfactant Trem® 014 (polyhydric alcohol esters). The resulting test suspensions are then used in the following tests. Spraying a 200 ppm test suspension to the point of run-off on the test plants is the equivalent of a rate of 500 g/ha.

TEST A

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore dust of *Erysiphe graminis f. sp. tritici*, (the causal agent of wheat powdery mildew) and incubated in a growth chamber at 20 °C for 7 days, after which disease ratings were made.

TEST B

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore suspension of *Puccinia recondita* (the causal agent of wheat leaf rust) and incubated in a saturated atmosphere at 20 °C for 24 h, and then moved to a growth chamber at 20°C for 6 days, after which disease ratings were made.

TEST C

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore suspension of *Septoria nodorum* (the causal agent of *Septoria* glume blotch) and incubated in a saturated atmosphere at 20 °C for 48 h, and then moved to a growth chamber at 20 °C for 9 days, after which disease ratings were made.

Results for Tests A-C are given in Table A. In the table, a rating of 100 indicates 100% disease control and a rating of 0 indicates no disease control (relative to the controls). A dash (-) indicates no test results.

Table A

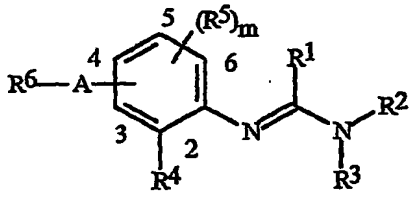
Cmpd No.	Test A	Test B	Test C
1	32	100	92
2	95	100	36
3	0	87	0

Cmpd No.	Test A	Test B	Test C
4	0	92	0
5	0	100	89
6	0	100	60
7	0	0	0
8	97	100	98
9	98	100	97
10	97	100	0
11	97	100	100
12	97	100	80
13	97	100	100
14	90	100	0
15	94	100	0
16	88	100	97
17	92	100	100
18	98	100	98
19	–	–	–
20	–	–	–
21	98	100	96
22	–	–	–
23	–	–	–
24	–	–	–
25	0	90	0
26	–	–	–
27	99	100	100
28	–	–	–
29	–	–	–
30	–	–	–
31	–	–	–
32	–	–	–
33	–	–	–
34	–	–	–
35	–	–	–
36	–	–	–
37	–	–	–

CLAIMS

What is claimed is:

1. A compound of Formula I and or an agriculturally suitable salt thereof,



I

wherein:

R^1 is H, OH, SH, SO_3H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R^1 is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;

R^2 is H, CN, $-OR^7$, or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_6 carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C_2-C_{10} alkylcarbonyl, each optionally substituted;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C_2-C_{10} alkylcarbonyl, each optionally substituted; or

R^2 and R^3 can be taken together with their interconnecting nitrogen to form a heterocyclic ring containing 3 to 7 atoms, said ring consisting of said interconnecting nitrogen atom, carbon and optionally one or two additional atoms selected from the group consisting of nitrogen, sulfur and oxygen, and said ring being optionally substituted with one or more R^9;

R^4 and each R^5 are each independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, C_1-C_6 haloalkyl, C_2-C_6 haloalkenyl, C_2-C_6 haloalkynyl, C_3-C_6 halocycloalkyl, halogen, CO_2H, $CONH_2$, SF_5, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino, C_3-C_6 cycloalkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl or C_3-C_6 trialkylsilyl;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxycarbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted; or R^6 is C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12};

A is a direct bond, O, $S(O)_n$ or NR^{10};

each R^7 is independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted;

each R^9 is independently halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkyl, C_1-C_4 haloalkoxy or C_1-C_4 alkylthio;

R^{10} is H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylsulfonyl, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl or C_3-C_6 trialkylsilyl;

each R^{12} is independently CO_2H, $CONH_2$, NO_2, C_1-C_6 haloalkoxy, C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_1-C_6 alkylsulfonyl, C_1-C_6 haloalkylthio, C_1-C_6 haloalkylsulfinyl, C_1-C_6 haloalkylsulfonyl, C_1-C_6 alkylamino, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_4-C_{10} alkylaminoalkylcarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_8 dialkylaminoalkylcarbonyl, C_3-C_9 alkylthioalkylcarbonyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy;

n is 0, 1 or 2; and

m is 0, 1,2 or 3.

2. A compound of Claim 1 wherein:

R^1 is H, SH, SO_3H, CN, -OR^7 or -SR^7; C_1-C_{10} alkyl, C_2-C_{10} alkenyl or C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^2 is H, CN, -OR^7 or -SR^7; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxycarbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted with one or more R^{11}; or R^6 is C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12};

each R^7 is independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, each optionally substituted with one or more R^8; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9;

each R^8 is independently halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy or C_1-C_4 alkylthio; and

each R^{11} is independently halogen, CO_2H, $CONH_2$, NO_2, hydroxy, C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_1-C_6 alkylsulfonyl, C_1-C_6 haloalkylthio, C_1-C_6 haloalkylsulfinyl, C_1-C_6 haloalkylsulfonyl, C_1-C_6 alkylamino, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_2-C_6 alkoxycarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_4-C_{10} alkylaminoalkylcarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_8 dialkylaminoalkylcarbonyl, C_3-C_9 alkylthioalkylcarbonyl, C_2-C_8 dialkylphosphoryl, C_2-C_8 dialkylphosphinyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy.

3. A compound of Claim 2 wherein

R^1 and R^2 are each independently H, CN, -OR^7 or -SR^7; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or phenyl optionally substituted with 1 to 3 R^9;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl or C_2-C_{10} alkynyl, each optionally substituted with one or more R^8; or phenyl optionally substituted with 1 to 3 R^9;

R^4 and R^5 are each independently C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, halogen, CO_2H, $CONH_2$, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_6 alkylcarbonyl, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkylaminocarbonyl or C_2-C_8 dialkylaminocarbonyl;

R^6 is C_5-C_{15} alkyl, C_5-C_{15} alkenyl or C_5-C_{15} alkynyl, each optionally substituted with one or more R^{11}; or R^6 is C_1-C_4 alkyl substituted with one or more R^{12};

each R^7 is independently C_1-C_6 alkyl, optionally substituted with one or more R^8;

A is a direct bond, O or $S(O)_n$; and

m is 0 or 1.

4. A compound of Claim 3 wherein

A is attached to the remainder of Formula I at the 4 position of the benzene ring.

5. A compound of Claim 4 wherein

R^1, R^2 and R^3 are each independently H or C_1-C_{10} alkyl;

R^4 and R^5 are each independently, halogen, C_1-C_6 alkyl or C_1-C_6 haloalkyl;

R^5 is attached to the remainder of Formula I at the 5 position of the benzene ring; and

m is 1.

6. A compound of Claim 5 wherein

R^1 is H;

R^2, R^3, R^4 and R^5 are each methyl; and

R^6 is C_6-C_{15} alkyl wherein at least one of the fourth and fifth carbon from A has one or no hydrogen attached or C_5-C_{15} 2-alkenyl wherein the fourth or fifth carbon from A has one or no hydrogen attached.

7. A compound of Claim 5 wherein

R^1 is H;

R^2, R^3, R^4 and R^5 are each methyl; and

R^6 is C_1-C_4 alkyl substituted with one or more substituents selected from the group consisting of C_2-C_6 alkylthio, C_1-C_6 alkylsulfinyl, C_2-C_6 alkoxycarbonyl, C_2-C_8 dialkylamino, C_2-C_6 alkylcarbonyl, C_3-C_9 alkoxyalkylcarbonyl, C_2-C_6 alkylaminocarbonyl, C_3-C_8 dialkylaminocarbonyl, C_3-C_9 trialkylsilyl or C_3-C_9 trialkylsilyloxy.

8. A fungicidal composition comprising a fungicidally effective amount of a compound of Claim 1 and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents.

9. A fungicidal composition comprising a mixture of a compound of Claim 1 and at least one other fungicide having a different mode of action.

10. A method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of a compound of Claim 1.

TITLE

AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES

ABSTRACT OF THE DISCLOSURE

Compounds of the formula $(R^5)_m$-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]benzene and their agriculturally suitable salts, are disclosed which are useful as fungicides, wherein

R^1 is H, OH, SH, SO_3H, CN, -OR^7 or -SR^7; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R^1 is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxycarbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted; or R^6 is C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12};

A is a direct bond, O, $S(O)_n$, or NR^{10}; n is 0, 1 or 2; m is 0, 1, 2 or 3; and R^2, R^3, R^4, R^5, R^7, R^{10} and R^{12} are as defined in the disclosure.

Also disclosed are compositions containing the compounds of the formula $(R^5)_m$-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]benzene and a method for controlling plant diseases caused by fungal plant pathogens which involves applying an effective amount of a compound of the formula $(R^5)_m$-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]benzene.